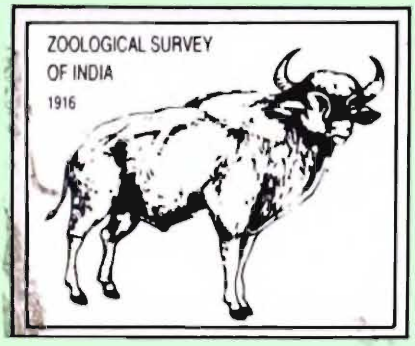
STATE FAUNA SERIES 4

FAUNA OF MEGHALAYA

PART 1
VERTEBRATES



ZOOLOGICAL SURVEY OF INDIA
1995

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Edited by

The Director, Zoological Survey of India



ZOOLOGICAL SURVEY OF INDIA

1995

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Foreword

The Convention on Biological Diversity (CBD) of which India is a signatory, makes it obligatory for each contracting party to assess the biological resources and to take appropriate action for its conservation for sustainable development.

The State of Meghalaya occupies an unique area in biography of India. The faunal diversity of the state can be co-related with ecosystem diversity, from the foothills areas of Khasi, Jaintia and Garo hills, to the Nokrek and Bolphakram region, the vegetation and forest cover aided by congenial climatic condition, the faunal diversity show one of the richest assemblage.

The present document record a total of 5538 species out of total of 81,000 species known from the India. In some groups *viz.* Mammalia, more than 35% of total Indian species are found in the state; similarly for birds nearly 50% of the species known from India find shelter in the state. Along with species diversity, the state has a significient percentage of endemic elements. The present document, to be published in 10 parts, would undoubtedly provide the first consolidated account of faunal diversity and thereby would be useful for conservation of biodiversity of the state in pursuance of National Biodiversity Action Plan. I would also like to put on record my deep sense of appreciation for Dr. J. R. B. Alfred, Additional Director and In-Charge of Publications and also Co-ordinator of this programme, Mr. B. C. Saha, Officer-in-Charge of Publication Division, Mr. G. Sivagurunathan, former Publication Production Officer, Mr. M. L. De, Assistant Zoologist and all members of the Publication Production Division for their untiring efforts to bring out this document in time.

Calcutta
November, 1995

A. K. Ghosh
DIRECTOR

FAUNA OF MEGHALAYA
PART 1

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THE STATE OF MEGHALAYA - AN OVERVIEW

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INTRODUCTION

Meghalaya came into being first as an autonomous state within Assam on 2nd April, 1970. Very soon the parliament passed the North Eastern Areas (Re-Organisation) Act on 30th December,1971 thus conferring full statehood on Meghalaya. Meghalaya became a full-fledged State on 21st January,1972.

The word Meghalaya from Sanskrit meaning the abode of clouds,was coined and given to this Khasi-Garo Plateau by Dr. Suniti Kumar Chatterjee, Professor Emeritus, Calcutta University an internationally famed linguist and Scholar Extraordinary. Meghalaya is situated in the North-East region of India and lies between 25.47° and 26.10° North latitude and 89.45° and 92.47° East longitude. It extends for about 300 kilometers in length and about 100 kilometers in breadth.

The State is divisible into three hilly regions. :

a) The Garo Hills (Western Meghalaya), b) the Khasi Hills (Central Meghalaya) and c) the Jaintia Hills (Eastern Meghalaya), and accordingly being the homeland of Garo, Khasi and Jaintia tribes. Meghalaya covers a total geographical area of 22,429 sq.km. of basically hilly terrain, bounded on the north by Goalpara, Kamrup and Nowgong districts on the east by Karbi Anglong and North Cachar Hills districts all of Assam, and on the south and west by Bangaladesh. The State has a population of 17,74,778 with a density of 79 persons per sq.km. and a total literacy percentage of 48.26 (1991 Census).

TOPOGRAPHY

The whole of Meghalaya is a plateau called the Meghalaya Plateau and sometimes referred to as the Shillong Plateau or Ri Khasi. Its height varies from 150 m to 1961 m from sea level and is characterised by great diversities in relief The plateau is highly dissected with irregular terrain on the northern and western sides with steep, regular slopes on the south, while in the north the plateau is not well defined due to broken hill ranges.

The Garo Hills in the western part of the Meghalaya Plateau is highly dissected It is about 600 m above sea level. This portion is separated by the Moheshkola-Adaguri range from the central part

of the plateau.The Tura range the Moheshkola-Adaguri range and the Simsang Valley are some of the important physiographic features here.

The Tura range extends for nearly 15 km. in a east-west direction from Siju to Tura. 13 km. south-west of Tura is Nokrek (1412 m.), the highest peak of this range. The Tura range itself is a typical horst (black mountain) bounded by two faults. The Simsang river flows for 45 km. east along the northern faults, and thereafter southwards through a gorge which separates the Tura range from the Kylas range. The latter lies east of the Simsang river and is higher than the surrounding hills. The Arbela range and hills north of Tura range are low but gradually rise and join the Tura peak in the south. All other parts of Garo Hills are also hill ranges with peaks between 450 and 600 m running north to south.

It is the Central and Eastern part (Khasi and Jaintia Hills) of the Meghalaya Plateau which is a true plateau. Three distinct units can be recognised here :

1) the undulating hills of the north
2) the central upland zone
3) the southern face of the plateau

The hills in the northern portion of the central and eastern parts of the plateau vary in height between 170 and 820 m. Local inhabitants call this the Bhoi area. This gradually slopes towards the Brahmaputra valley from the sub-montane region of the central plateau and possesses two peneplained surfaces one stretching from Nongpoh to Burnihat and other from Jorabat to Khanapara. Most of these hills are flat topped and above 490 m.

The most important physiographic unit of the plateau occupying more than one-third of Central and Eastern Meghalaya is the central upland zone running west to east. A contour of 1500 m marks its outer boundary. The zone consists mainly of rolling uplands intersected by river and dotted with rounded hills of soft rocks. It also contains remnants of seven peneplained surfaces located at varying altitudes. Shillong peak (1961m) is the highest point of the central upland zone situated to the south of Shillong town. The others peaks are Mawthoren peak (1485m), Diengiei peak (1770m), Sohpetbneng peak (1320m) and the Mawpat peak (1590m). On the north west is the Kyllang Rock (1705m) composed of hard granite rock. Between Mairang and Nongstoin there is an unnamed peak (locally known as Thadraishan 1893m) the second highest in Meghalaya.

The steepest parts of the plateau lies on its southern face also called War country by local inhabitants. The northern fringe area possesses a typical granite topography with rounded hills and shallow valleys. The southern part comprises of a vast structural platform, built of gently dripping sandstones of Cretaceous age, the edge of which is the magnificient Mawsmai falls. The structural platform is an escarpment with its surfaces deeply eroded by fluvial erosion resulting from heavy rainfall. Deep valleys have divided the area into three platforms the Cherrapunji, the Lyngkyrdem and the Mawsynram. Cherrapunji is characterised by a number of small, rounded limestone hills containing caves with narrow underground tunnels with limestone features such as stalactites and stalagmites. The edge of the plateau towards Bangladesh plains is characterised by deep precipices.

The eastern parts of the Meghalaya plateau i.e. the Jaintia Hills form a contiguous part of the central Meghalaya with the same physiographic divisions as the northern hills, the central Jowai upland and the southern escarpment. However, it is relatively lower, averaging around 1200m. It is the Jowai uplands, its ridges with an altitude of 1500m extending from east to west that acts as a watershed between the Surma valley (Bangladesh) and the Brahmaputra Valley. The hills of Jaintia in general have more flat lands than the Khasi Hills.

GEOLOGY

The hills of Meghalaya are very old, formed at least 135 million years ago during the early Tertiary period. There are some rocks with intrusive character,like the granite rocks near Nongpoh and Kyllang which are perhaps 700 million years old. They are Pre-cambrian rocks, old and rare. Meghalaya is known to consist of five geologic formations : the Shillong group of rocks, the lower Gondwana rocks, the Archaean Gneissic complex, the Sylhet trap and the Cretaceous Tertiary Sediments.

Quartzite, granite, schizt, conglomerate and a few others make up the Shillong Group of rocks. They occur in the eastern and central parts of Meghalaya, and generally lie over the gneissic complex and are characterised by silts and dykes.

The Archaean Gneissic complex occupies the central and northern parts of Meghalaya. Here gneiss, quartzite and schizt are the main rock formations.

The western parts of the Garo hills is occupied by the lower Gondwana rocks and include pebble beds, sandstones and shale.

The Sylhet traps lie exposed in a narrow belt, extending in the east-west direction along the southern border of the Khasi hills. The Sylhet traps consists mainly of basalt and rhyolites and overlie the eroded precambrian basement, and are themselves overlain by the upper Cretaceous-Eocene Sediments.

The Cretaceous-Tertiary Sediments occupying the southern parts of the State are very thick and extensive and are considered to be the continuation of the Cretaceous-Tertiary Sediments of the Bengal plains. The chief rocks include Sandstone,Shale and Limestone. The formations are divided into three groups : (1) the Khasi group, (2) the Jaintia group and (3) the Garo group. The Khasi group is further divided into the Jadukata, the bottom conglomerate and the Mahadek formations.

The Quarternary deposits (older alluvium) overlie the Tertiary rocks but in isolated patches along the southern, western and northern borders of Garo Hills and along the southern fringe of Khasi Hills. The deposits are usually assorted pebbles with coarse sand and brownish clay.However,recent alluvium is found in the river valleys of the northern and southern foothills of Garo and Khasi hills and along the western border of Garo hills. Here they consist of fine silting sand and light to dark greyish clay with occasional pockets and layers of coarse sand and shingles.

CLIMATE

The climate of Meghalaya is varied and at least 4 climatic zones exist here (1) the temperate raining climate zone, (2) the warm midlatitude climatic zone with high rainfall, (3) the

Mediterranean-type zone with high seasonal rainfall and (4) the west equatorial type climatic zone with seasonal rainfall.

The climate of Meghalaya is influenced by its topography. Broadly the year may be divided into four seasons : (1) a warm spring season in March and April, (2) a hot /rainy summer season (Mosoon) from May to September, (3) a pleasant Autumn season from October to mid November, and (4) a cold winter season from mid November to February. Garo hills, which is relatively lower in altitude, experiences a fairly high temperature for greater part of the year with April (33°C) as the hottest month and January (12°C) the coldest. The average rainfall in western Meghalaya is 330cm of which more than 2/3rds occur during the four months of May,June, July and August. Winter in these parts is particularly dry with about 2 cm of rainfall between December and February. The amount of rainfall decreases from south to north due to the moist south-west monsoon winds striking the southern hills first and causing heavy rainfall. In the north these winds are obstructed by the Tura range and rainfall is low.

The Shillong area has very cold nights in winter when the temperature sometimes falls to 1.7°C. In the Cherrapunji-Mawsynram area in the extreme south the range of temperature is 7.6°C to 23°C. But the characterstics of this area is its very heavy rainfall (average 1270 cm).

In Central and Eastern Meghalaya the average annual rainfall is around 770 cm and 2/3rds of it falls between May and September. The east-west alignment of the high hill ranges of the central uplands exerts a rainshadow effect on the areas in the north where there is low rainfall. Mawsynram, a village situated 16 km west of Cherrapunji records the worlds highest rainfall - 1392 cm. Cherrapunji which held the record earlier has 1142 cm of rainfall.

SOIL

The soil of Meghalaya may be broadly classified into four categories : red loamy soil, laterite soil, red and yellow soil and alluvial soil. The red loamy soil is found in the central part of Garo Hills and the Central Uplands in Central and Eastern Meghalaya. The surface which is about 30 cm thick has a colour range of reddish brown to dark reddish brown. The soils are rich in organic matter and nitrogen but deficient in phosphate and potash.

The laterite soils occur in a broad belt extending west to east in the northern part of the State. The colour of these soils are reddish or yellowish red. They are poor in organic matter.

The red and yellow soils are found in a belt running from west to east in the southern parts of the State. The colour of these soils vary from yellow to red, reddish yellow and yellowish brown. These soils are fine textured varying from loam to silty loam.

The alluvial soils are found all along the northern, western and southern border areas of the State. Their texture varies from sandy to clayey loam. The soils are rich in potash, varying in amounts of nitrogen but poor in phosphate and are highly acidic.

The character of the soils of Meghalaya is largly determined by the terrain of the State. On the hill tops, the soil is generally thin,immature, light in colour, less clayey and less fertile, while they are more fertile and clayey in the valleys and the alluvial lowlands.

RIVERS, WATERFALLS AND WETLANDS

The rivers of the State flow down from the watershed of the Tura range in Garo Hills and the Central uplands in Khasi and Jaintia Hills towards the Bangladesh plains in the south and the Brahmaputra valley in the north. Important rivers of the northern group in Garo Hills from west to east are the Kulu, Ringgi, Didak, Didram, Krishnai and Dudhani. Of these only Kalu and Krishnai are navigable. The southern groups of rivers in Garo Hills from west to east are Sanda,Bandra, Bhogai,Dareng, Nitai and Simsang. Of all rivers of Garo Hills and in fact of all Meghalaya, the Simsang is longest-- but is navigable for only 30 kms.

In the Khasi and Jaintia hills also, there are two groups of rivers, one flowing north and others towards south. In the northern group the important rivers are the Khri, Digaru,Kupli and Umiam, while those of the Southern groups are the Kynchiang, Umiew, Umngot and Myntdu.

The drainage pattern in the State is formed by 5 types the dendritic, the parallel, the radial, the rectangular and the trellis patterns.

The Umlunar river and its tributaries in Jaintia Hills and the Wahlaw river and its tributaries in Khasi Hills are of dendritic pattern. The rivers Umiew and Umshoshing Kiew with their tributaries in the southern part of Khasi Hills display a typical parallel drainage. The radial pattern is common throughout the State but most dominant in Garo and Jaintia Hills.The rivers Hari and Kharkar with their tributaries, form the rectangular pattern in the central part of Jaintia Hills. The last type of drainage the trellis pattern is displayed by the Umngot river.

The State of Meghalaya is well known for its waterfalls. In fact Meghalaya is also called the land of waterfalls. Most of these waterfalls occur in the northern slope of the State. Some of the important and picturesque are the Sweet falls on the Umkhein River, the Rongbang Falls on the Simsang River, the Beadon Falls, Bishop Falls, Spread Eagle Falls and Elephant Falls in the neighbourhood of Shillong, the Nohsngithiang,Dainthleen, Nohkalikai and Kynrem Falls near Cherrapunji. Others are the Kshiad Thum Thum Falls, Kymshiang Falls, the Wainnia Falls, Umar Falls,Kryshoh Falls, the Iale Falls, the Imilchang Dare and the Rongbang Dare.

Meghalaya also has some of the clean, unpolluted wetlands of the country. One such of tourist importance is the War'd's lake in Shillong, Khasi Hills. The Umiam lake formed by the stage I of the Umiam Hydel Project by the side of the main Guwahati-Shillong road and Kyrdemkulai lake formed by stage III of the same Project are reservoir wetlands. The Tasek lake in the East Garo Hills, the Kata Beel in West Garo Hills are the important Wetlands in Garo Hills, while the Syntuksiai,the Thadlaskein lake and the Umhang are important wetlands of Jaintia Hills.

FOREST AND VEGETATION

The State of Meghalaya comprises of nearly eight forest types – Sal,Mixed Deciduous, Evergreen, Bamboo, Grasslands, very moist Sal, Eastern Himalayan Moist Deciduous, and Assam sub-Tropical Pine.

The Sal forests are made up of Alluvial Sal and Foothill and Plateau Sal. The former type occurs in continuous stretches in Chimabangshi, Dhima, Angratoli and Dibru Hill reserves which are

situated on lowlying flatlands near the border of East Garo Hills. The foothills and Plateau type Sal forests are generally found in East and West Garo Hills. Besides Sal, other principal associations are *Schima wallichi, Largerstroemia parviflora, Strereospermum chelonides, Gmelina arborea, Toona ciliata, Terminalia belerica* and others.

The mixed deciduous forests are found between the Sal forests. They are more on the ridges and slopes. These comprise of *Schima wallichi, Alstonia scholaris Sterculia villosa, Garrunga pinnata, Aidina cordifolia, Albizzia procera* and others.

The Evergreen forests are mainly confined to the areas near the streams and swamps.The lower portions of the Emangiri reserve is gradually turning into the evergreen forests. The species found here are *Castonopsis* and *Quercus* species, *Duabanga sonneratoids, Syziguim cumini,Artocarpus chapalasna, Mesna ferrde, Dysokyplum binectariferum, Dillenia indica, Palaquium polyanthum, Podocarpusa meriflora*, etc.

The Bamboo forests are confined to the areas which have been subjected to the extensive slash and burn agriculture. Bamboo is found in three main associations : Pure, mixed with Sal, and mixed with other Deciduous species. Bamboo forests are distributed in all the districts of the State in almost all the reserves of the Khasi, Jaintia and Garo Hills. There are nearly 30 species of bamboo available in Meghalaya. The genus *Arundinaria* has 4 species, *Bambusa* has 5 species, *Cephalostachyum* 2 species,*Chimonobambusa* has 5 species, *Dendrocalamus* is made up of 4 species, *Gigantochloa* 2 species, *Melocanna* one species, *Neohouzeana* 2 species, *Phyllostachys, Pseuostachysius* and *Oxytenanthra* one species each, while *Teinistachyum* has 2 species.

One tree which is common on the higher altitude is the *Pinus kesiya*. They occur principally in Khasi and Jaintia Hills between 24°58' to 26°07'N latitude and 90°45' to 92°51' E longitude, in the forests of Shillong, Jowai, Pynursula, Cherrapunji and Nongstoin areas.

The total forest cover of the State is estimated at 9496 sq km,which roughly corresponds to 38% of the geographical area of the State. The Government Reserve Forests hardly constitute 4.4% of the geographical area and the rest of the forests are under the Private ownership or are owned by the community which is nearly 8500 sq km. termed unclassed forest. The Government forests are categorised into Reserved,Protected, National Parks and Wildlife Sanctuaries with 713.12 sq.km.,12.39 sq.km.,386.77 sq.km.and 34.20 sq.km. respectively. There are three Reserve forests in Jaintia Hills, nine in East Garo Hills seven in West Garo Hills and five in East Khasi Hills. The protected forests are five in number and are mostly in East Khasi Hills. The two National Parks Balphakaram and Nokrek are in Garo Hills, while the Wildlife Sanctuaries are three in number Nongkhyllem in East Khasi Hills and Siju and Bagmara Pitcher Plant Sanctuaries in West Garo Hills.

An astonishingly striking feature of Meghalaya is the presence of the remnants of innumerable small primary forests revered as sacred forests or *Law Lyngdoh* in the Khasi and Jaintia Hills. Most villages in Garo Hills also keep aside such forests untouched for the departed to rest. From time immemorial the plants in these forests are left unhinderd to grow, live, decay and re-grow, without any interference from man. Nobody even collects fallen leaves, twigs or branches nor does anyone pluck fruits. Nothing is taken out for timber, fuel,medicines or ornamentation. The villagers protect

these forests and consider them sacred, where deities are supposed to reside. Their belief is that if anyone cuts trees or plucks flowers from here, the wrath of the deities would befall them. That is why for centuries these primeral forests are intact and remain unspoilt by man. Of these sacred groves, one at Mawphlang and another at Shillong Peak deserves mention. Even in the heart of the town, in Jowai, there is a tiny sacred grove a pleasing sight to the eyes.

Sadly enough the State of Meghalaya also has barren/degraded wasteland amounting to 8150 sq.km. This barren land is primarily the result of shifting cultivation known locally as *Jhum*. Jhum or Jhumming is a practice of cultivation where forests are cut and burned, followed by multicropping (eg. rice, barley, cucumber, etc.) for usually a year, after which it is abandoned as fallow for an indefinite period. This period which used to be 20-30 yrs. has now been reduced to 4-5 yrs due to increased human pressure. This renders the land totally degraded. Most important Jhum also renders the usual forest corridors bare leading to large scale depradation by elephants The population of Gibbons and other non-human primates is being reduced to non-availability of territory. The forest Department of Meghalaya has taken steps to rectify the situation. Nearly 430 sq.km. of barren land have been brought under artificial plantation upto the seventh plan. The species planted are mostly Khasi Pine and broad leaved economic and fast growing species. The physical target for the eighth plan is proposed to be 620 sq.kms.

AGRICULTURE

More than 80% of the total population of Meghalaya depends on agriculture for their livelihood. Though agriculture is important only 8% of the total geographical area is available for cultivation, due primarily to the rugged terrain and low productive soils except in the valleys. Of the State's total geographical area of 22.429 lakh hectares, the gross cropped area is 2.37 lakh hectares, while the net cropped area is 1.98 lakh hectares and the area sown is the more than 39000 hectares. Of the gross cropped area, 1.33 lakh hectares is under foodgrains. The large varieties of crops that Meghalaya produces can be placed under four major heads,viz., Food grains, Commercial crops. Horticulture crops and other crops. 62% of the total cropped area is from food grains, while 25% and 9% is attributed to commercial crops and horticulture respectively. Among the food grains Rice is the most important and occupies 50% of the cropped area of the State while Maize being the next important is harvested from only 8% of the cropped area. Potato like Maize occupies 8% and forms one of the most important commercial crop of Meghalaya. Other important agriculture products are Oil seeds, Cotton, Jute, Mesta, Ginger and Sugarcane.

Of the horticulture crops Orange, Pineapple and Banana are the important ones of the State. The War area of Khasi Hills grows extensive oranges, while Shella and Cherrapunji areas are known for the best quality of oranges. One of these the Khasi Mandarin is known to be the best. Similarly the pineapple comes from the Southern parts of Khasi Hills where the climate is warm and humid and the drainage is good. Some of the best varieties like Kew and Queen are grown. Bananas also form one of the best horticulture crops and varieties like Cavendish, Malbhog and Chinichampa are grown in the State. Peaches, Plums and Pears are grown in the higher altitudes.

The economy of the State of Meghalaya is also linked largely to animal husbandry and dairy farming. More than 50% of the cattle of the State are found in Khasi Hills, while Garo Hills has nearly 70% of the Buffaloes. Piggery in the State is of immense importance, since pork forms a major part of the diet of the tribal people of Meghalaya. In addition to the major Pig farms at Shillong and Tura, where special breeds such as Berkshire and Saddleback are bred, other farms have been established in Nongstoin, Jowai and Rongjeng. Dairy farming as an industry has been flourishing quite well in Meghalaya, with a milk chilling plant at Naya Bungalow (Umsning) in East Khasi Hills supplying nearly 5000 litres of milk every day. High quality butter, ghee and cream is produced in one of the dairy extension centres at Jowai as also at Tura and Rongram in Garo Hills.

MINERAL RESOURCES

Meghalaya is blessed with a number of economic minerals. The important ones are Coal, Limestone, Clay and Sillimanite. Coal in found throughout the State. Its ash content is much lower than the best quality coal in the country. But it suffers badly due to its high sulphur content. Limestone occurs along the southern border of Meghalaya and is of good quality (cement grade to chemical grade). White clay is found deposited in various parts of the State. The sedimentary or *Lithomargic* clays occur in *Tertiary Formation*, while Kaolin (China clay) is associated with the *Archaean gnessic* rock. Fine clay with refractory characteristics occur in Garo Hills. The Sillimanite deposits found in the Sonapahar region of West Khasi Hills are said to be one of the best deposits of Sillimanite of the world. The other minerals are Phospherite, Glass-sand, Quartz and Feldspar, Gypsum, Base metals like Copper, Zinc, Nickel, Cobalt, etc., other iron ores, Gold and Mineral Oil.

FAUNAL RESOURCES

The Fauna of the State of Meghalaya has always attracted both naturalists and zoologists for more than 150 years. Records are available that Mammals have been surveyed in Meghalaya as early as 1847, and from 1851 1875 many famous naturalists had surveyed, collected and described the fauna of Meghalaya.

As of July 1, 1916, with the establishment of the Zoological Survey of India, systematic survey, collection and inventorisation was initiated in the present West Garo Hills District. The Indo-German Expedition (1956-57) of which the Zoological Survey of India was a partner, surveyed Meghalaya also. With the establishment of the Eastern Regional Station, in Shillong in 1959, the first regional station to be opened by the Zoological Survey of India, various workers of that station as well as experts from Headquarters, Calcutta had made a number of collections. All such surveys and collections were carried out by group specialists who specialised in surveying and recording species of their specialisation.

However, during 1989-90 to 1993-94 scientists of all disciplines from Zoological Survey of India, both from the Eastern Regional Station and Headquarters were given a mandate to systematically survey each and every district of Meghalaya and that too for all groups of fauna from Protozoa to Mammalia (see list of localities in the appendix). The results of these recent surveys

along with the material, records and results of earlier surveys have all been consolidated in the following chapters of this part and subsequent parts as " Fauna of Meghalaya "

The analysis of the Fauna of Meghalaya, which will be brought out in ten volumes reveals, that there are 5538 species of animals in 2545 genera. Of these the largest group belongs to the Insects comprising of 3624 species in 1662 genera, and the smallest known in Porifera which has only one species in one genus. Next in order of abundance after the insects, birds are the largest group with about 540 species in 232 genera. Mollusca and Arachnids come next with 223 species (67 genera) and 217 species (104 genera) respectively. Total vertebrate fauna reveals 958 species under 451 genera. The fishes and mammals of Meghalaya are well represented in that they are 152 species (74 genera) and 139 species (83 genera) respectively. These faunal records more than amply reveal the rich biodiversity of the State of Meghalaya.

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Budget Speech 1991-92	-do-
Review of the Implementation of Development Schemes And Programmes 1991-92 A Supplement to the Budget Speech	-do-

COLECTION LOCALITIES LISTED DISTRICTWISE

(alphabetically arranged)

EAST KHASI HILLS DISTRICT

Baridua, Batjora, Bishnupur, Bismal, Bloong, Burnihat, Chandmari, Charfurlong, Dawki Road, Dumpep, Elephant Falls, Golf Link, Happy Valley, ZSI Insectory Building Compound, Jailad, Janakhmukh, Khabari, Laban, Lachumiere, Lady Hydari Park, Laiflyra, Lailad, Laitmukhra, Lalchand Basti, Lawsonltum, Limsingh, Lumparing, Mahadeokala, Malki Forest, Malsa Reservoir, Madwan Village, Mardphalang, Mauryngmang, Mawprem, Mawpun, Mawsmai, Nargkhota, Nastiang, Nonghthnmai, Norblong, Parak, Pighill, Pynursla, Ranikor, Rati River, Ribong, Risa Colony, Rongiri, Ronghthymari, Sahraim, Sejbich, Serengma, Shella, Shillong, Sohrarin, Sohrynkham, Srineketan, Stony Land, Synpep, Synrangmmano, Therighat, Tun-Wa-Sherra Stream, Tyrna, Umpling, Umsalem, Umtham, Umtyngar, Ward's Lake.

RI-BHOI DISTRICT

Byrnihat, Khanapara, Kyrdemkulai, Manihar Basti, Mohin Basti, Nongkhari, Nongkhyllem Forest, Nongpoh, Nongram, Nongthambar, Umlam, Umling, Patharkhama, Umran, Umroi River, Umsa, Umsning.

WEST KHASI HILLS DISTRICT

Balat, Halmaudon, Jakrem, Magumai, Mairang, Markasa, Mawlong, Mawphlong, Mawsynram, Moaloi, Molong, Mylliem, Nongbroi, Nongfa River, Nonghlaw, Nongstoin, Ranikor, Rambari, Riangdo, Sejlich, Sonapahar, Umlam, Weiloi.

JAINTIA HILLS DISTRICT

Badarpalli, Chonpung, Dawki, Dymtring, Garampani, Jalong, Jaran, Jowai, Khanduli, Khelichri, Khonshnong, Kollasiv, Koushnong, Kullehrnei, Lokadong, Luchook, Mawstam, Mawiyngkneng, Mihmgntoa Village, Modymani, Mooralong, Mukala, Muktapur, Mynsaw, Myntdu River, Nartiang, Nontiang, Raliang, Rangapani, Ratachara, Reithsesim, Sabai Basti, Saphi, Shangpung, Sonapur, Sutanga, Syndai, Thadlakai Lake, Thadlaskein, Umkiang, Umlatham River, Ummulong, Umphrenais, Umsigngia, Zoranthanga.

WEST GARO HILLS DISTRICT

Alogiri, Anogiri, Antiangiri, Arcuilla, Ashangiri, Babupara, Badmagiri, Bamandinga, Baranepara, Bhatbari, Bodhmari, Bogai River, Bokongiri, Bolchugiri, Bolchugiri, Bongai River,

Chaipani, Chandmari, Charikuti, Chinabal, Dakopgiri, Dalu, Damalgiri, Damrabazar, Darangiri, Dari, Degrangiri, Dohipgiri, Dopgiri, Ganol, Garobadha, Garopara, Gasuapara, Goerangre, Hallaidanga, Jangitchagiri, Janjal, Kherapara, Kylas Peak, Machanpani, Mahadeo, Maimonsingh, Mankachar, Nokrek, Nongthan, Phulbari, Rajabala, Ranginsin, Rangrikothan, Resa, Rombrai, Rongdang, Rongius, Ronkhon River, Rongli, Rongra, Rongram, Rongring, Rongsakgiri, Rongtham, Sansangiri, Sarching, Sarenhing, Selbalgiri, Sibbary, Somi River, Songkham, Sungsong Stream, Tasek Lake, Tebongiri, Tura, Walbakgiri, Wari, Wongal.

EAST GARO HILLS DISTRICT

Amphangiri, Arvilla, Bansamgiri, Bojengdoba, Charikuta, Cheran, Cherikuty, Damra, Damrang, Dainadubi, Damgiri, Degrangiri, Dewagiri, Dobigiri, Dumrangiri, Durabanda, Ganol River, Jolegiri, Kadomkolai, Khanapara, Kharkula, Kharkutta, Langolbibra, Mandi, Mathokgiri, Mawblong, Mendi, Nangkhara, Nangwal, Narangiri, Nararggree, Nengkhra, Nongal, Nongwalbibra, Nufa hills, Ramgiri, Ransak bazar, Rewak, Rombagiri, Rongbangri, Rongrengiri, Rongjeng, Rongnil, Rongra Stream, Rongsangiri, Samorda, Samphalangiri, Sisobibra, Sohiong, Songsok, Songsokorram, Tambo, Tasek, Wageasi, Warangiri, Williamnagar.

SOUTH GARO HILLS DISTRICT

Baghmara, Balphakram, Dobigiri, Metahkgiri, Narangiri, Nongwalbibra, Rongnachok, Rongra, Ronsakgiri, Siju Cave.

FAUNAL EXPLORATIONS

District	**Number of collection localities**
West Garo Hills	75
East Garo Hills	56
South Garo Hills	10
West Khasi Hills	23
East Khasi Hills	70
Ri Bhoi	18
Jaintia Hills	43
Total	**295**

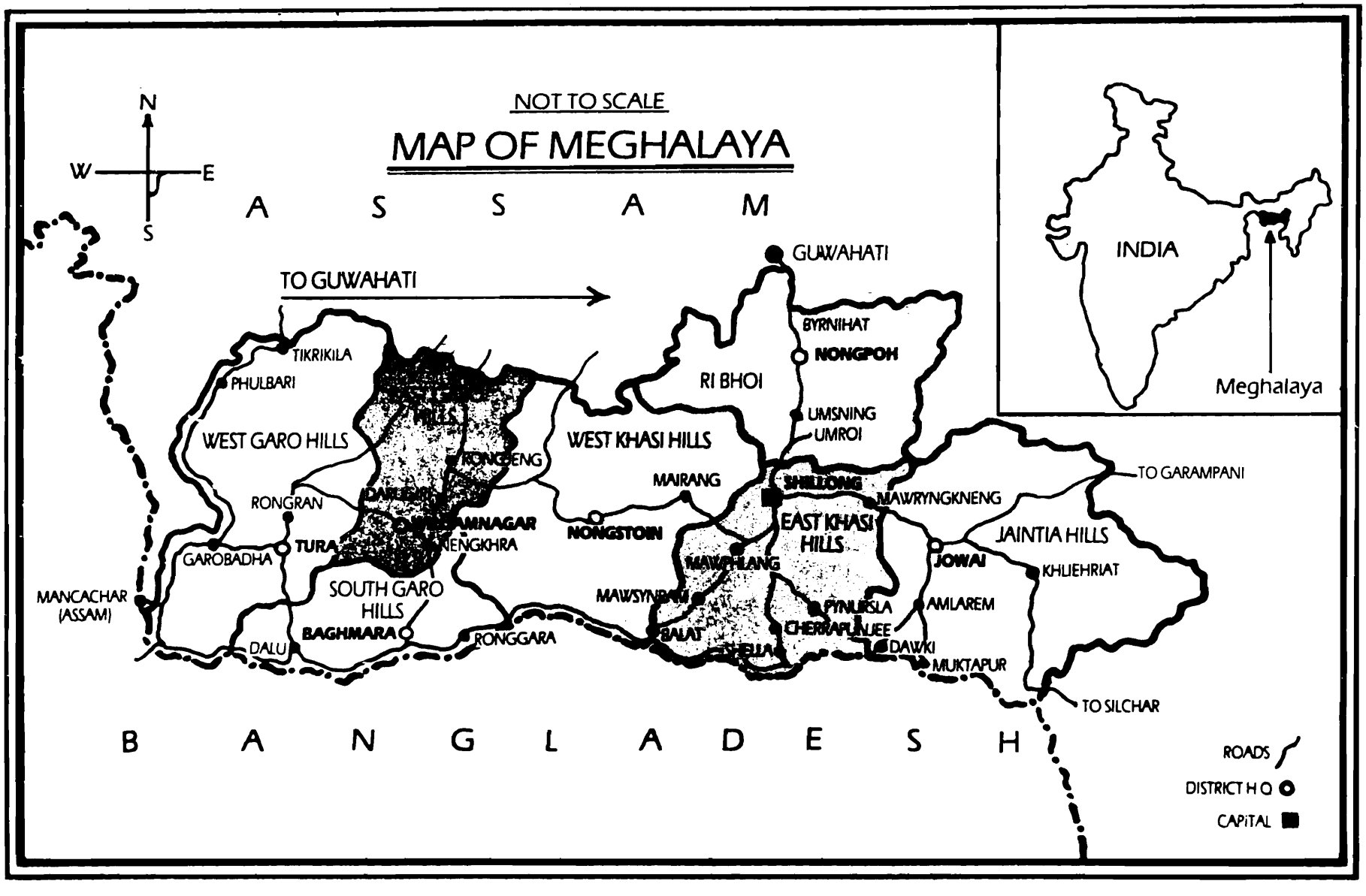
FAUNAL WEALTH OF MEGHALAYA : AN INDEX

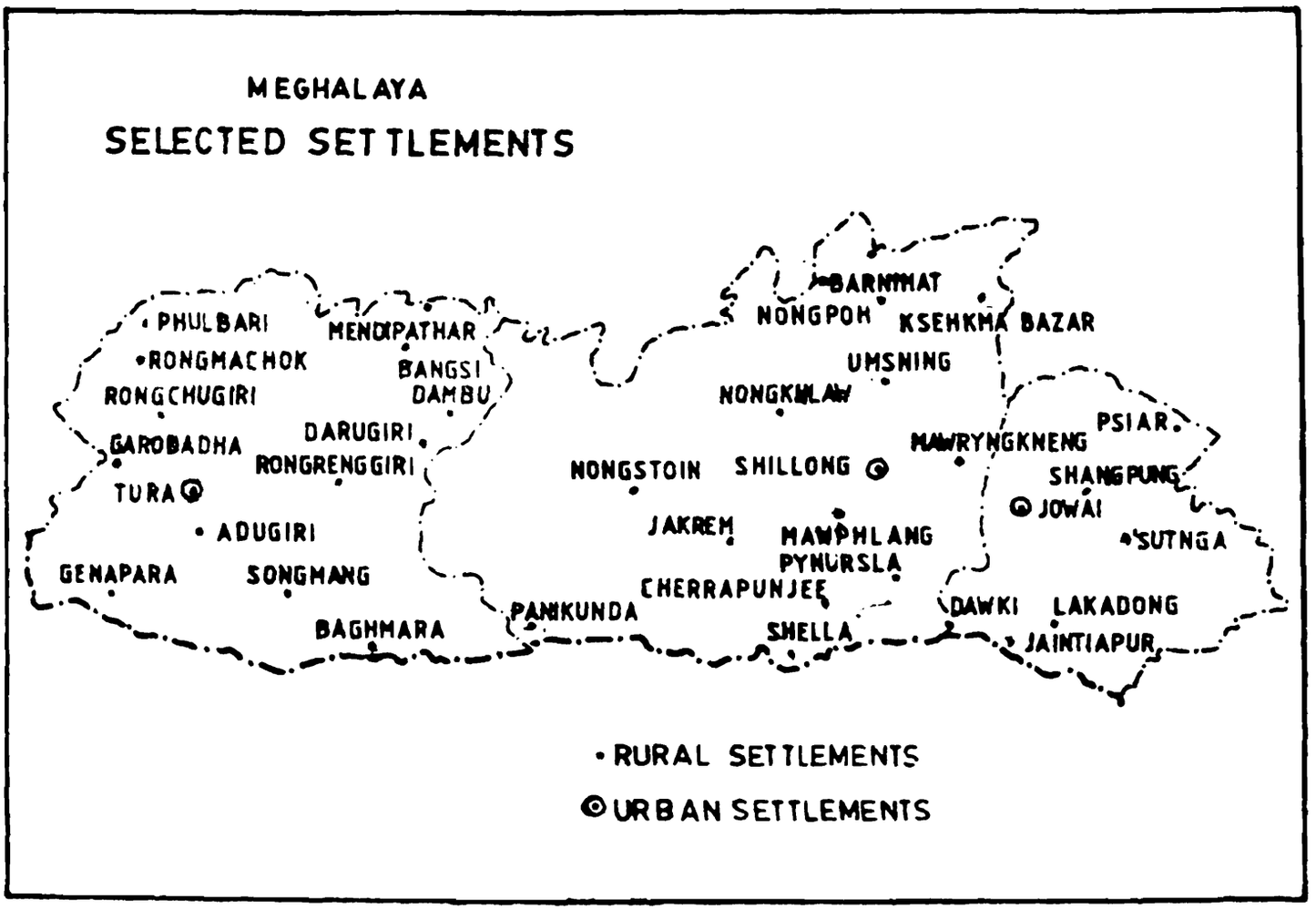
	No. of Genera	No. of Species
Vertebrate	451	958
Mammalia	83	139
Aves	232	540
Reptilia	51	94
Amphibia	11	33
Pisces	74	152
Invertebrate	2094	4580
Bryozoa	3	5
Arthropoda	1805	3901
Arachnida	104	217
Acari	66	125
PlantMites	28	71
Oribatid Mites	32	42
Ixodidae	6	12
Araneae	38	92
Insecta	1662	3624
Ephemeroptera	4	5
Collembola	6	10
Odonata	79	151
Plecoptera	8	18
Orthoptera	55	69
Acridoidea	42	55
Tettigoniidae	13	14
Dermaptera	31	49
Blattaria	20	26
Mantodea	17	24
Psocoptera	6	6
Hemiptera	318	516
Aphidoidea	105	232

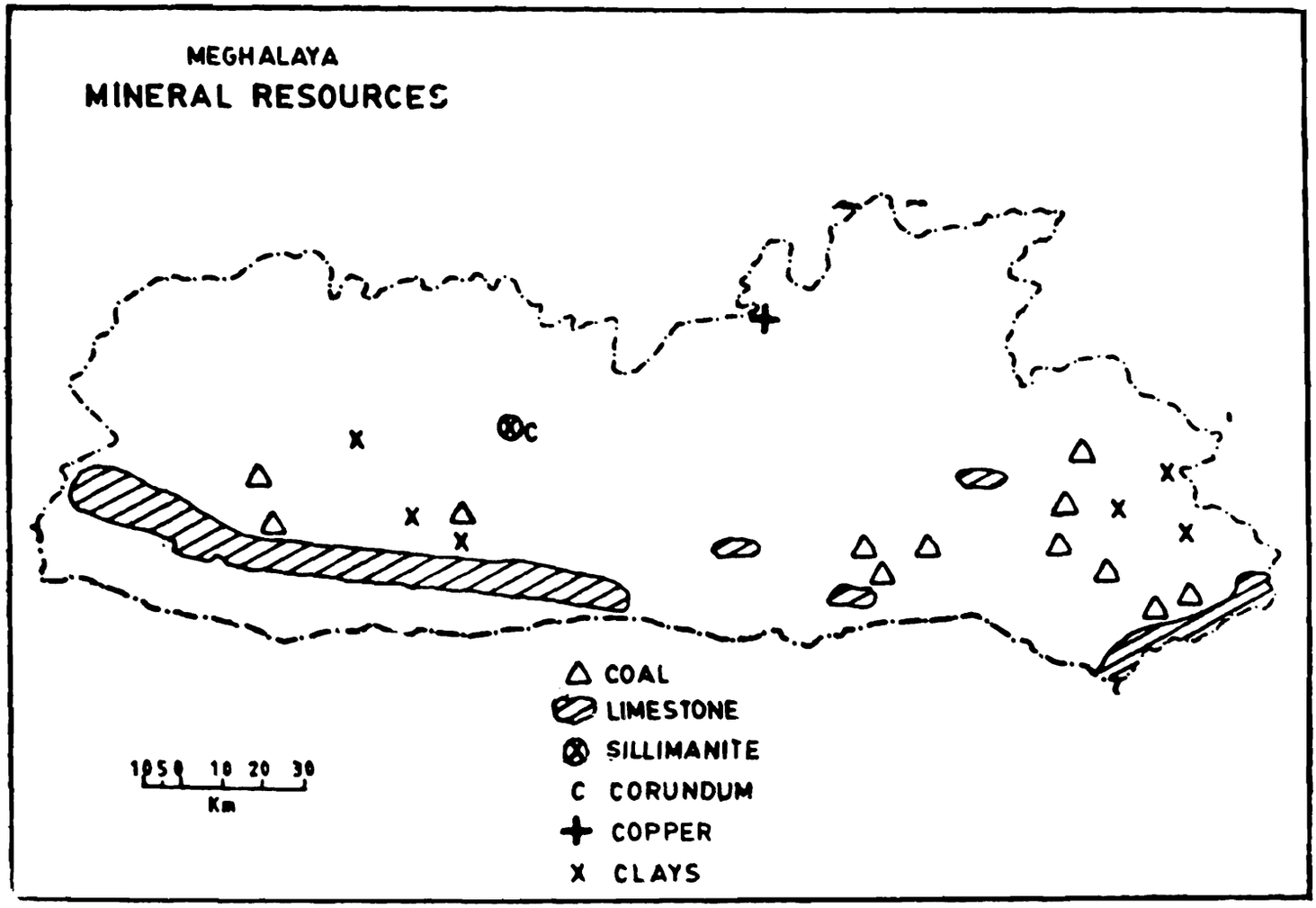
Cercopoidea	25	29
Cicadellidae	27	38
Membracidae	11	19
Coccoidea	19	21
Fulgoroidea	16	20
Psyllidae	9	14
Pentotomoidea	37	46
Phyrrocoridae	8	14
Reduvidae	37	48
Water Bugs	24	35
Coleoptera	324	766
Carabidae	52	89
Histeridae	18	35
Staphylinidae	43	82
Scarabaedae	17	115
Scarabinae, Cetomiinae, Dynastinae, Rutelinae	30	94
Chrysomelidae	123	265
Cucujidae : Laemophloeinae	4	6
Coccinellidae	21	47
Meloidae	3	5
Lathriidae	4	8
Scolytidae	9	20
Diptera	255	602
Nematocera	68	270
Brachycera	55	123
Cyclorrhapha	132	209
Lepidoptera	265	574
Papilionidae	10	50
Pieridae	14	34
Danaidae	4	15
Lycaenidae	11	12
Hesperiidae	60	115

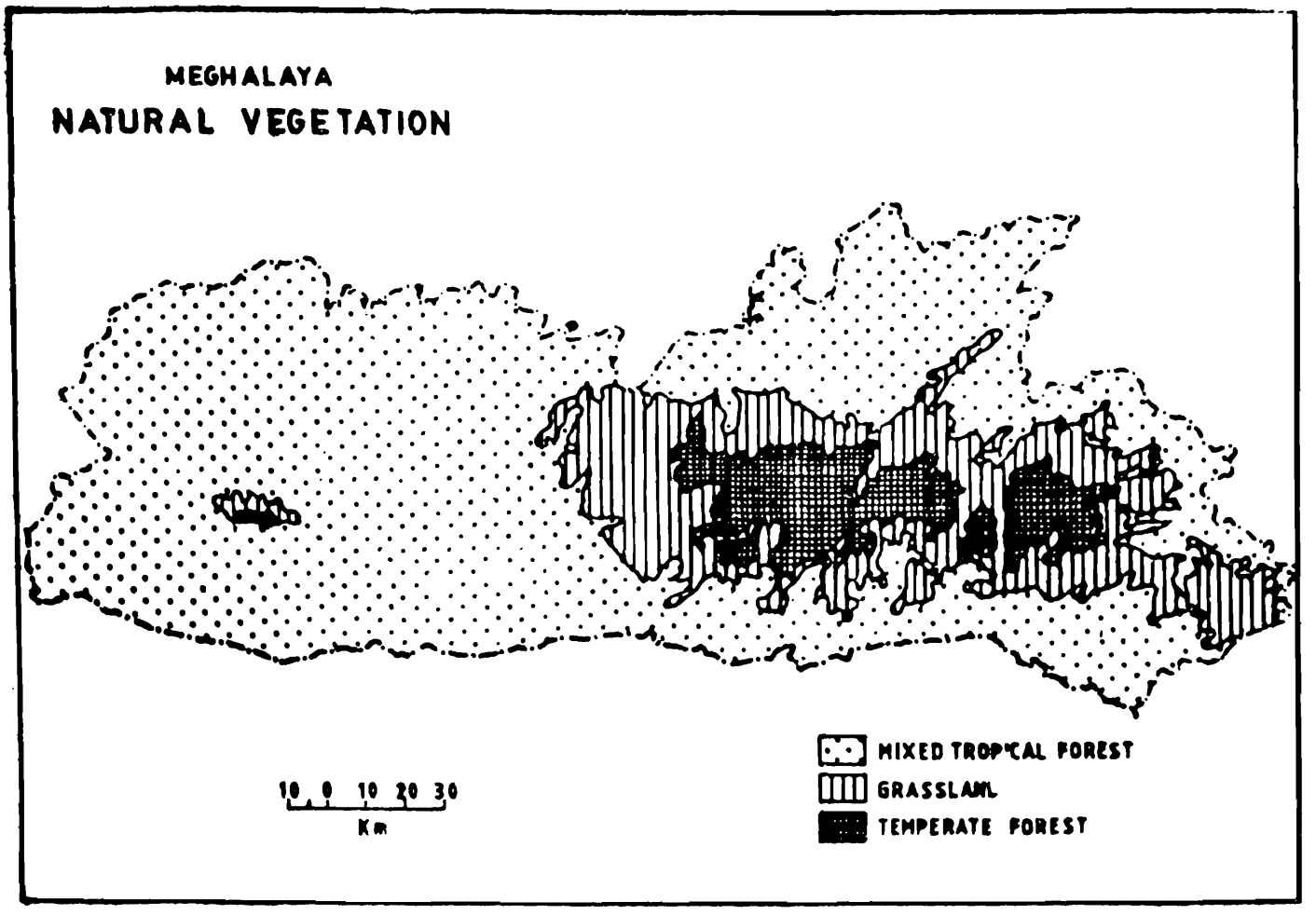
Arctidae	46	117
Ptenuchidae, Hypsidae, Limacodidae	8	32
Geometridae, Sphingidae, Noctuidae	65	84
Lasicampidae, Lymantidae, Ratardidae	31	85
Zyganidae	27	42
Trichoptera	20	61
Thysanoptera	30	47
Neuroptera	35	45
Hymenoptera	198	643
Vespidae	8	44
Scoliidae	8	16
Sphecidae	20	75
Formicidae	52	163
Ichnuemonidae	110	345
Crustacea	39	60
Copepoda	1	2
Decapoda	1	9
Potamonidae	8	8
Cladocera	29	41
Annelida	25	49
Oligochaeta (Terrestrial)	11	34
Oligochaeta (Freshwater)	6	6
Hirudinea	8	9
Mollusca	67	223
Freshwater Molluscs	15	35
Land Molluscs	52	188
Nematoda	49	77
Parasitic on plants	14	28
Parasitic on vertebrates	35	49
Rotifera	30	111
Platyhelminthes	56	83
Trematoda : Digenea	38	53

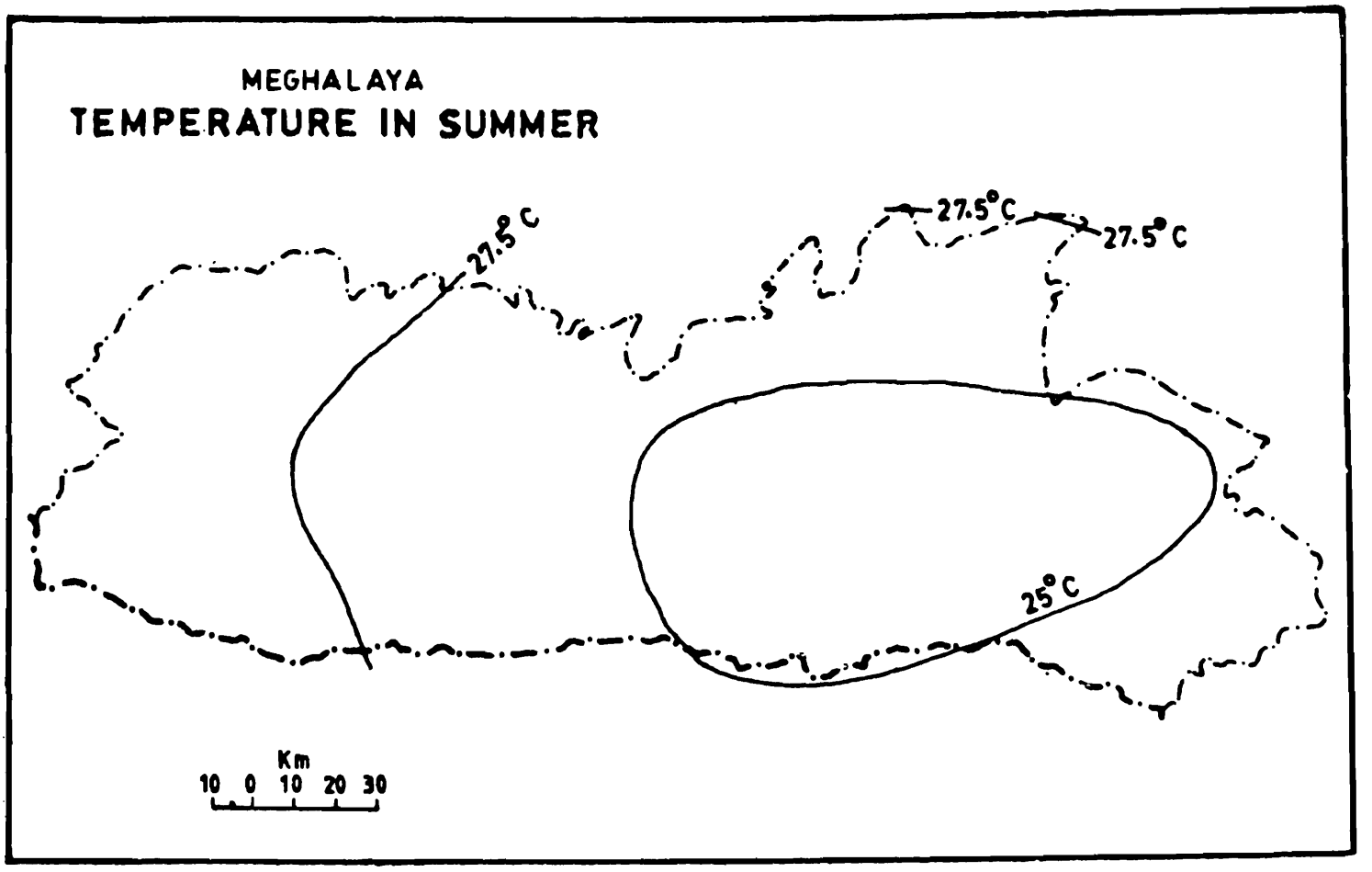
Cestoda	18	30
Medusae	2	2
Porifera	1	1
Protozoa	56	128
Freeliving protozoans	30	58
Symbiotic protozoans	6	12
Parasitic protozoans	20	58
TOTAL	**2545**	**5538**

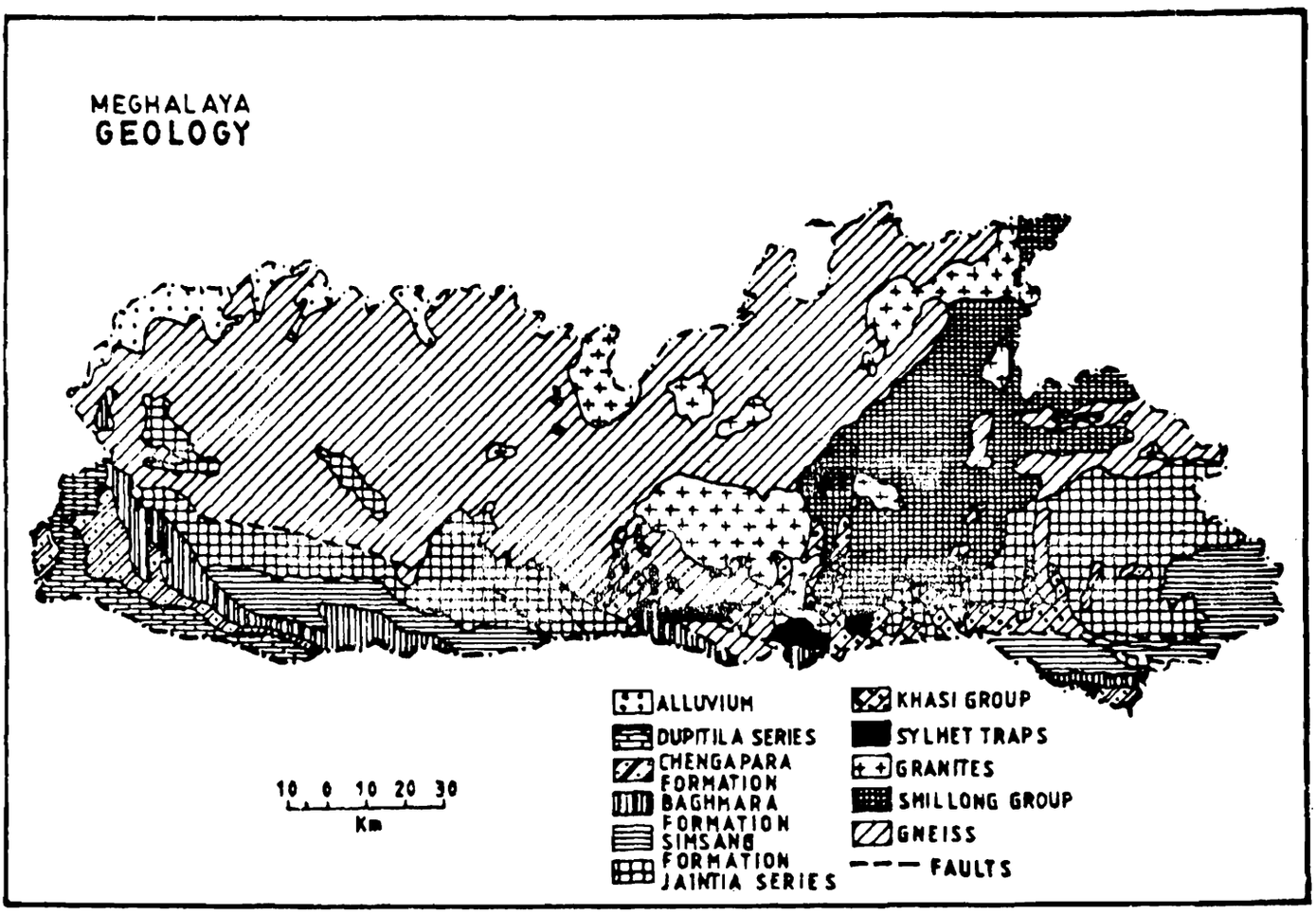

NOT TO SCALE
MAP OF MEGHALAYA
N
W
E
S
A S S A M
TO GUWAHATI
GUWAHATI
BYRNIHAT
NONGPOH
RI BHOI
UMSNING
UMROI
TIKRIKILA
PHULBARI
WEST GARO HILLS
WEST KHASI HILLS
RONGRENG
MAIRANG
SHILLONG
TO GARAMPANI
MAWRYNGKNENG
RONGRAN
NONGSTOIN
EAST KHASI HILLS
JAINTIA HILLS
GAROBADHA
TURA
NENGKHRA
MAWPHLANG
JOWAI
KHLIEHRIAT
MANCACHAR (ASSAM)
SOUTH GARO HILLS
MAWSYNRAM
PYNURSLA
AMLAREM
BAGHMARA
CHERRAPUNJEE
BALAT
DAWKI
DALU
RONGGARA
MUKTAPUR
TO SILCHAR
B A N G L A D E S H
INDIA
Meghalaya
ROADS
DISTRICT H Q
CAPITAL

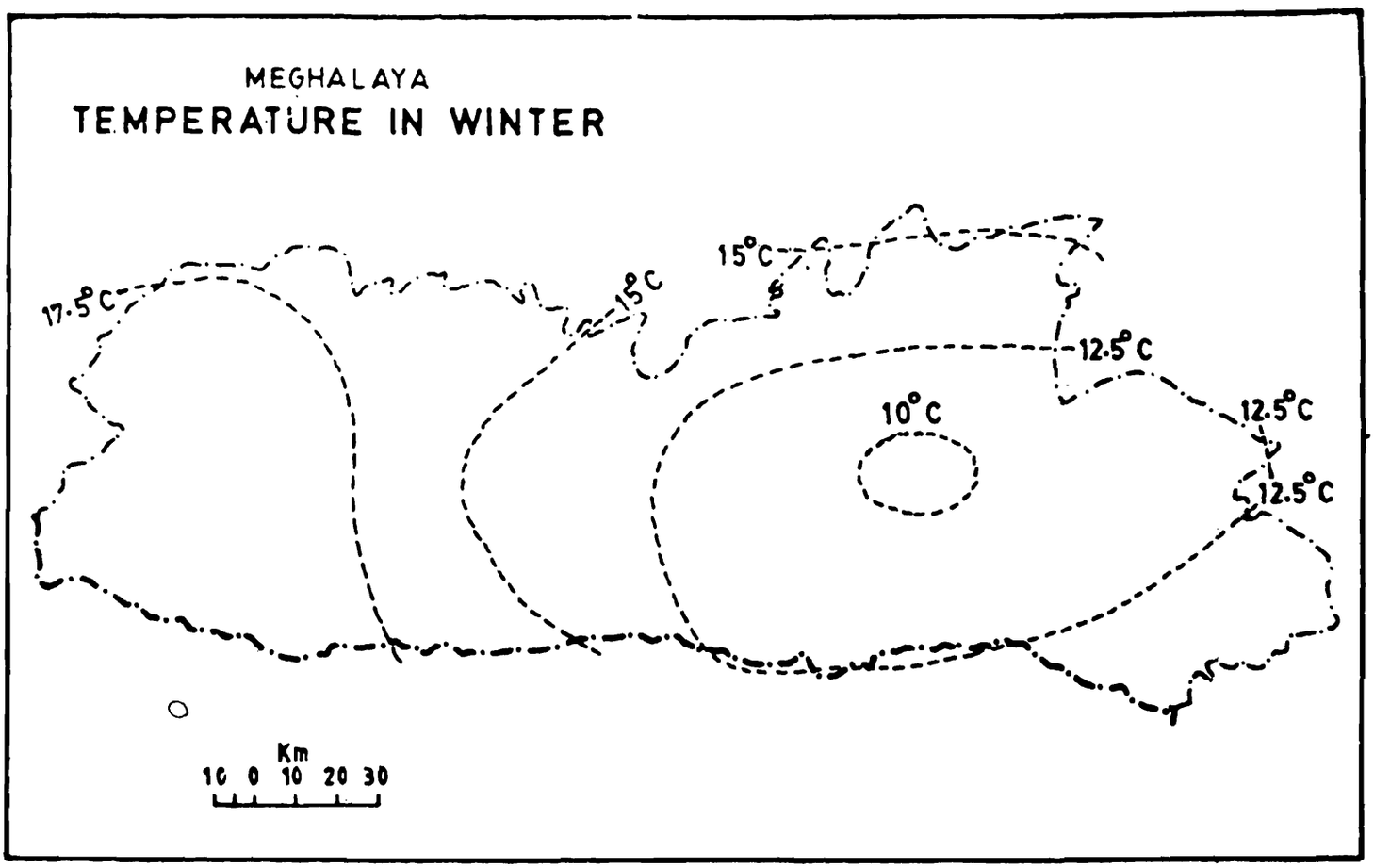

MEGHALAYA
SELECTED SETTLEMENTS
BARNIHAT
NONGPOH
KSEHKHA BAZAR
PHULBARI
MENDIPATHAR
RONGMACHOK
BANGSI
UMSNING
RONGCHUGIRI
DAMBU
NONGKHLAW
PSIAR
GAROBADHA
DARUGIRI
MAWRYNGKNENG
RONGRENGGIRI
NONGSTOIN
SHILLONG
SHANGPUNG
TURA
JOWAI
ADUGIRI
JAKREM
MAWPHLANG
SUTNGA
PYNURSLA
GENAPARA
SONGMANG
CHERRAPUNJEE
PANKUNDA
DAWKI
LAKADONG
BAGHMARA
SHELLA
JAINTIAPUR
• RURAL SETTLEMENTS
⊙ URBAN SETTLEMENTS

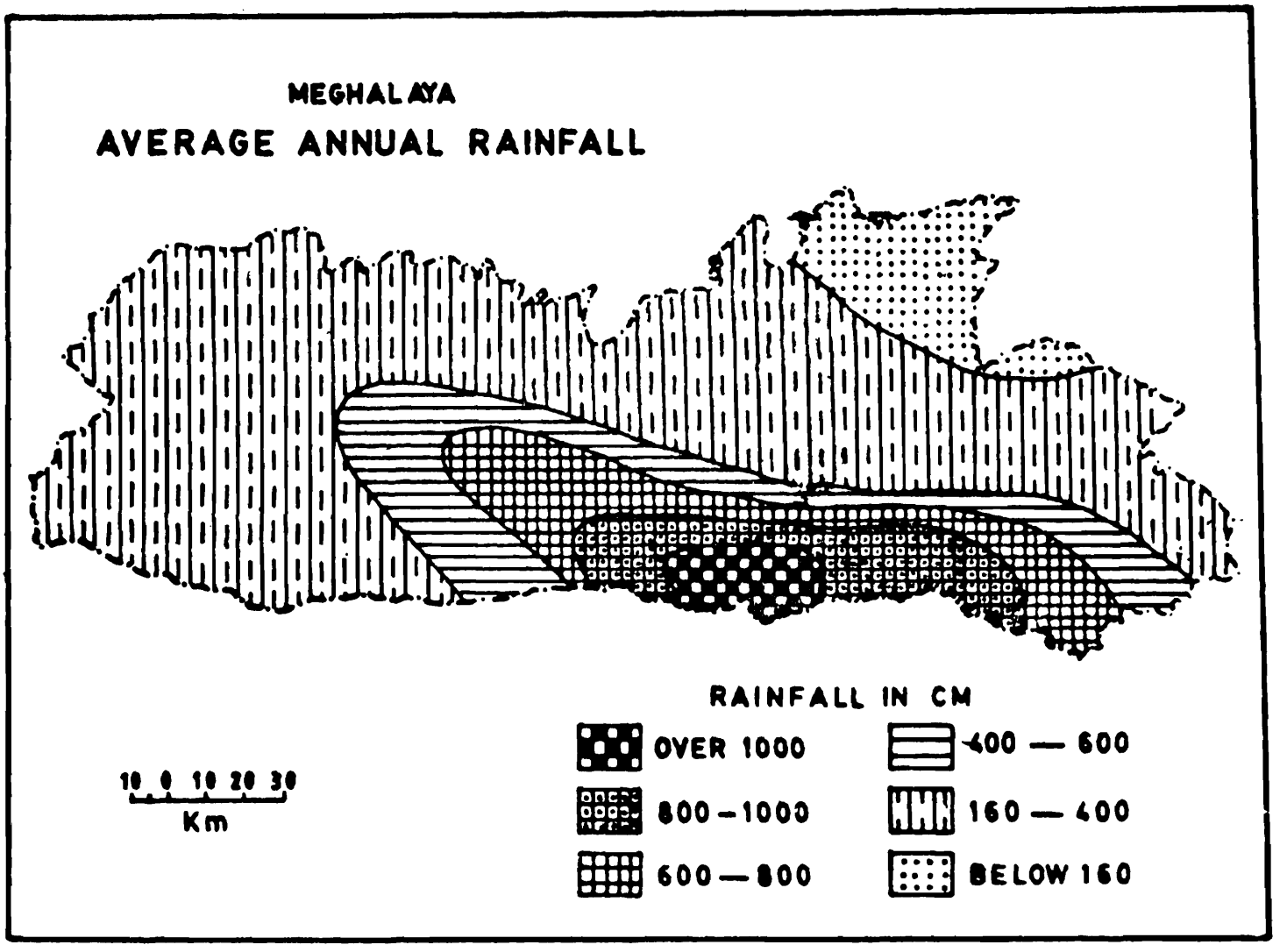

MEGHALAYA
MINERAL RESOURCES
C
COAL
LIMESTONE
SILLIMANITE
C CORUNDUM
COPPER
X CLAYS
10 5 0 10 20 30
Km

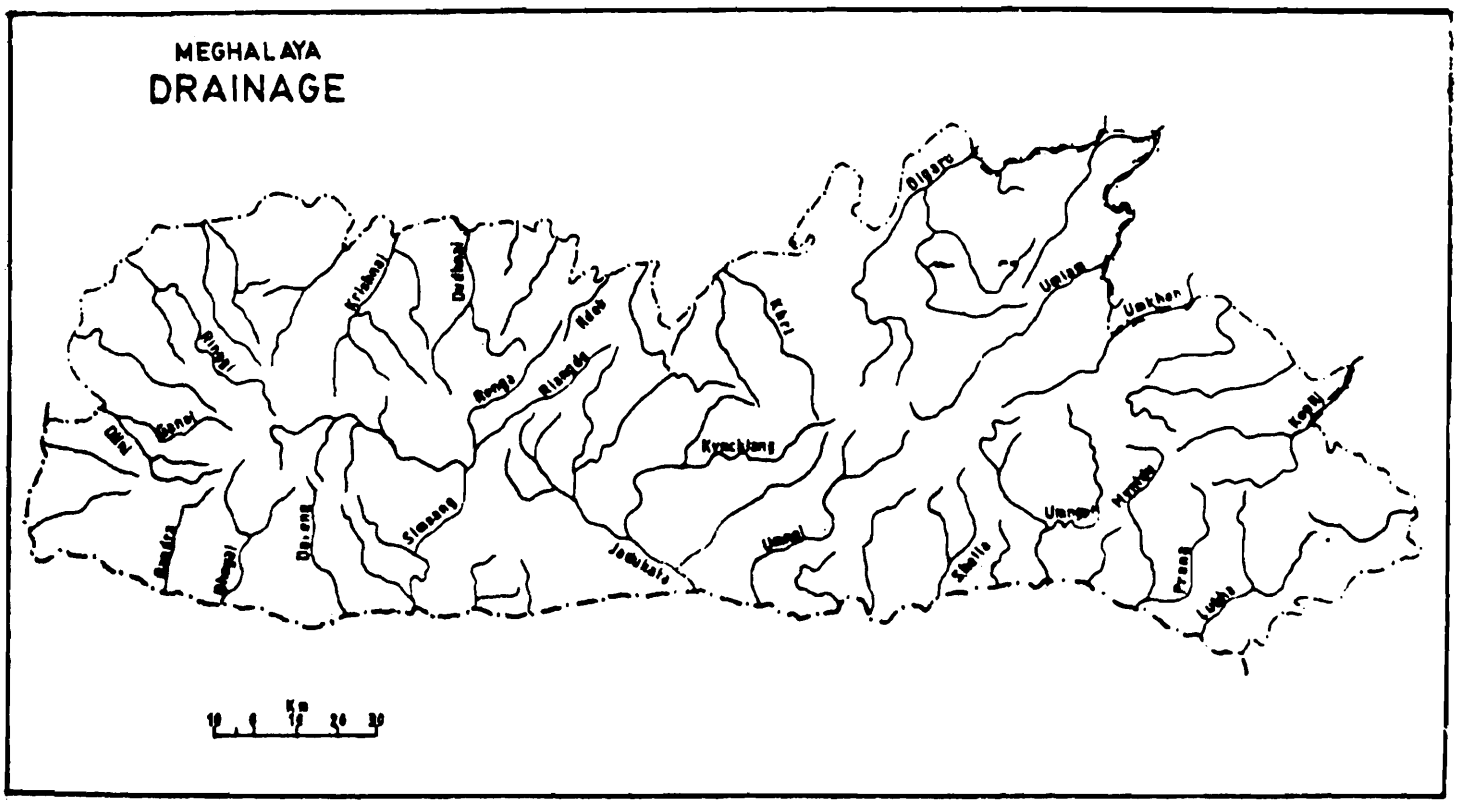

MEGHALAYA
NATURAL VEGETATION
10 0 10 20 30
Km
MIXED TROPICAL FOREST
GRASSLAND
TEMPERATE FOREST

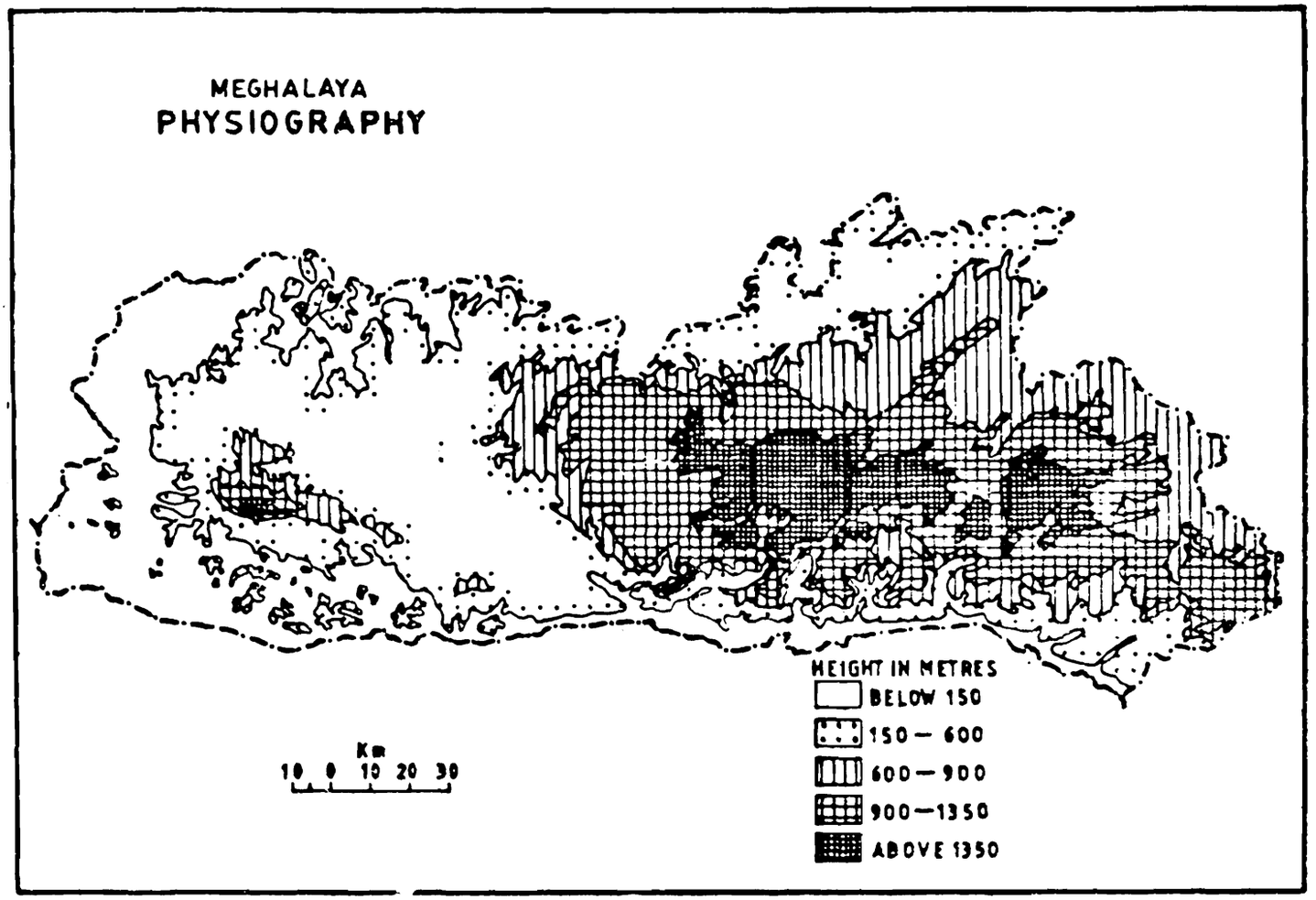

MEGHALAYA
TEMPERATURE IN SUMMER
27.5°C
27.5°C
27.5°C
25°C
Km
10 0 10 20 30

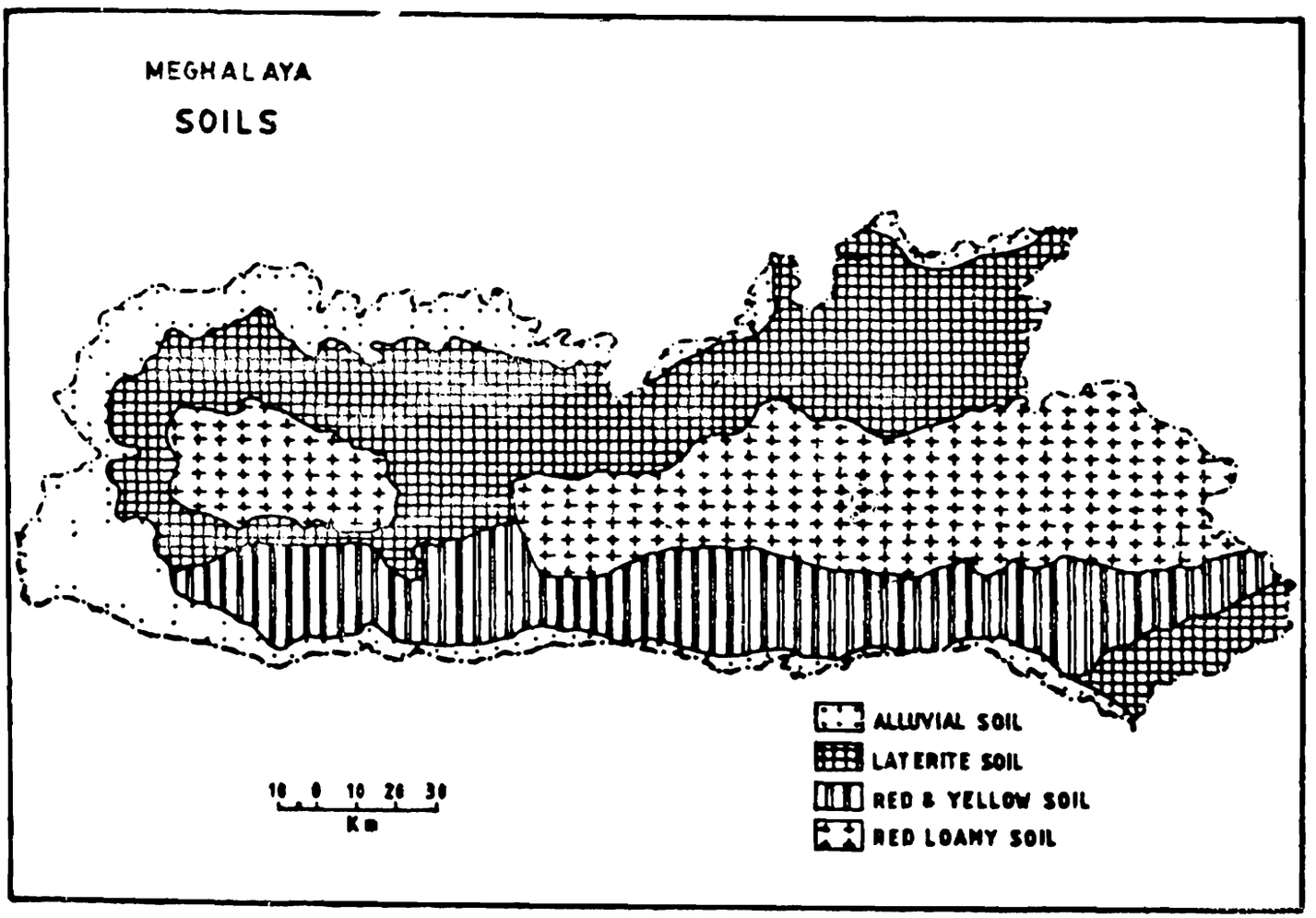

MEGHALAYA
GEOLOGY
ALLUVIUM
DUPITILA SERIES
CHENGAPARA FORMATION
BAGHMARA FORMATION
SIMSANG FORMATION
JAINTIA SERIES
KHASI GROUP
SYLHET TRAPS
GRANITES
SHILLONG GROUP
GNEISS
FAULTS
10 0 10 20 30
Km


MEGHALAYA
TEMPERATURE IN WINTER
17.5°C
15°C
15°C
12.5°C
10°C
12.5°C
12.5°C
Km
10 0 10 20 30


MEGHALAYA
AVERAGE ANNUAL RAINFALL
RAINFALL IN CM
OVER 1000
800 – 1000
600 — 800
400 — 600
160 — 400
BELOW 160
10 0 10 20 30
Km


MEGHALAYA
DRAINAGE
Km


MEGHALAYA
PHYSIOGRAPHY
HEIGHT IN METRES
BELOW 150
150 — 600
600 — 900
900 — 1350
ABOVE 1350
Km
10 0 10 20 30


MEGHALAYA
SOILS
ALLUVIAL SOIL
LATERITE SOIL
RED & YELLOW SOIL
RED LOAMY SOIL
10 0 10 20 30
Km

Zool. Surv. India
State Fauna Series 4 : Fauna of Meghalaya, Part 1 : 23-128, 1995

MAMMALIA

P. K. DAS, R. K. GHOSE, T. K. CHAKRABORTY
T. P. BHATTACHARYYA and M. K. GHOSH
Zoological Survey of India, Calcutta

INTRODUCTION

Out of a total of 4,232 species of mammals known from the world, 372 species occur in the Indian Union (Corbet & Hill 1986). Of these, 139 species are being reported from Meghalaya.

COLLECTORS OF MAMMALS FROM MEGHALAYA

As far as the history can be traced, Mr. J. W. Laidlay appears to be the first collector who procured specimens of mammals from the present state of Meghalaya, for taxonomic study. Among the early collectors of mammals from Meghalaya, the name of Lt. Col. H. H. Godwin-Austen should be recorded with much emphasis. This famous Malacologist explored various hilly areas of erstwhile Assam, including those in Meghalaya, besides other parts of India. Other noltable collectors of mammals of Meghalaya, during the twentieth century, along with the period of their collecting, are given in the following table —

Name of collector	*Period of collecting*
Laidlay, J. W.	1847
Frith, R. W. G.	1851, 1857
Skipwith, F.	1855, 1859
Haughton, H. L.	1867
Godwin-Austen, H. H.	1868, 1870, 1871, 1875
Anderson, J.	1869
Belletty, N.	1870
Bourne, J. H.	1871, 1872
Stoliczka, F.	1875

During the first two decades of the twentieth century, a number of collectors obtained specimens

of mammals from various parts of Meghalaya. Thus, Mr. B. Warren and Mr. R. Freil collected in 1909 and 1914 respectively. After the establishment of the Zoological Survey of India in the year 1916, Dr. S. W. Kemp of that department collected mammalian specimens in the present West Garo Hills district. Mr. H. W. Wells, collector for the Bombay Natural History Society's Mammal Survey of India, Burma and Ceylon, collected different species of mammals in South and East Garo Hills districts, East Khasi Hills district, Ri-Bhoi district and Jaintia Hills district, during October 1919 to July 1920. Dr. S. W. Kemp and Dr. B. N. Chopra of the Zoological Survey of India procured five species of mammals from the Siju Cave, South Garo Hills district, in the year 1922. In 1949, the Zoological Survey of India could obtain a considerable number of mammalian specimens, firstly, through the efforts of Mr. R. V Sherard, Zoological Collector of the department, and secondly, by way of purchase from Mr. H. L. Hiteshi, a private collector.

The Zoological Survey of India participated in the Indo-German Expedition (1956 -' 57) which made collections in Meghalaya also. After the Eastern Regional Station of the Zoological Survey of India was established at Shillong, various workers of that Regional Station surveyed different parts of Meghalaya and obtained substantial amount of mammalian specimens. During the sixth decade of the present century, two foreign mammalogists also collected in Meghalaya, *viz.*— Mr. G. Topal of the Hungarian Natural History Museum, Budapest (bats only, in 1967) and Mr. R. M. Mitchell of the Bishop's Museum, Honolulu (small mammals, in 1968).

After the initiation of the departmental project, 'State fauna of Meghalaya' Dr. R. K. Ghose from the headquarters of the Zoological Survey of India surveyed some areas of Meghalaya, especially for mammals, in 1988. In 1989, Dr. A. K. Mandal, also from the headquartes, surveyed Jaintia Hills district and procured some interesting examples of small mammals. In the same year, the Zoological Survey of India could procure some mammalian specimens as donation from Dr. S. Gangwar. From the Eastern Regional Station of the Zoological Survey of India, Dr. Y P. Sinha continued collecitng bats from the Siju Cave.

EARLIER PUBLICATIONS

Horsfield (1851) listed some species of mammals from the present Meghalaya. In the following year, Blyth (1852) reported on a collection of mammals from Cherra Punji. This latter author (Blyth 1863*a*) listed all specimens of mammals present in the museum of the Asiatic Society. Jerdon (1867) provided a preliminary descriptive account of mammals of India which also included those from Meghalaya. Dobson (1874) published a list of bats of Khasi Hills. Two years afterward, the same author (Dobson 1876) published his monumental work on the Asiatic Chiroptera in which descriptions, distributions, etc., of all the bats knwon from Meghalaya up to that time were provided. The first complete faunal account on Indian mammals was authored by Blanford (1888, 1891). During this period, Anderson (1881) and Sclater (1891) published catalogues of mammalian sepcimens present in the Indian Museum, which naturally included those from the present state of Meghalaya.

At the beginning of the twentieth century, Allen (1906) gave brief accounts of large and medium-sized carnivores and ungulates of different areas of Meghalaya, with their habitat preference and relative abundance in some instances. Kemp (1924) reported on five species of mammals collected from the Siju Cave. Hinton & Lindsay (1926) gave an account of the various groups of mammals collected

from different localities of the present Meghalaya. It is quite pertinent here to mention the publication of the second edition of the 'Fauna of India, Mammalia' (orders Primates and Carnivora only) by Pocock (1939, 1941), a checklist of Indian mammals by Ellerman & Morrison-Scott (1951, 1966), and the revised faunal account of Indian rodents by Ellerman (1961).

During the period from the sixth to the nineth decades of the twentieth century, various workers of the Zoological Survey of India published a sereis of papers on the taxonomy, geographical distribution, biology, conservation, etc., of a number of species of mammals occurring in Meghalaya. Notable among them are Agrawal (1980), Alfred (1992), Alfred & Sati (1986, 1990*a*, 1990*b*), Biswas (1970), Biswas & Diongdoh (1979), Ghosh & Biswas (1976, 1977), Khajuria (1963), Kurup (1966, 1968), Mandal & Biswas (1970), Mandal & Das (1970), Pillai (1973, 1980), Pillai & Biswas (1972) Rajagopal *e. al.* (1966) and Sinha (1990). During this period, Topal (1970) reported a species of rare bat from a cave near Cherra Punji.

The present paper is based mainly on the specimens of mammals from Meghalaya present in the Zoologial Survey of India, Calcutta and its Eastern Regional Station, Shillong, as also partly on published literature.

Complete synonymies have not been given, as these are available in Blyth (1863*a*), Jerdon (1867), Dobson (1876), Anderson (1881), Blanford (1888, 1891), Sclater (1891), Pocock (1939, 1941), Ellerman & Morrison-Scott (1951) and Ellerman (1961). Current synonymies have, however, been discussed under 'Remarks'

Measurements have been expressed in millimetres (except where stated otherwise) and have been taken after Pocock (1939, 1941) for Primates and Carnivora, Khajuria (1953) for Chiroptera, and Ellerman (1961) for Rodentia. The figures (up to first place of decmial) in parentheses immediatley after the range of measurements indicate arithmatic means (for more than two specimens), those (whole numbers) placed in parentheses immediately after the abbreviated form of measurement indicate the number of specimens available for a particular measurement.

ABBREVIATIONS

Adol. = adolescent; AMNH = American Museum of Natural History, New York; *apf* = length of anterior palatal foramina; *b* = length of bulla; BNHS = Bombay Natural History Society, Bombay; c^1 c^1 = distance between cingula of upper canines; *cb* = condylobasal length; *ccl* = condylocanine length; CMNH = Carnegie Museum of Natural History, Pittsburgh; c m_3 = length of lower tooth-row; *cr* = cranial rostrum; *cw* = cranial width; *d* = length of diastema; E = length of ear; Fa = length of forearm; F & Cl = length of foot and claw; H & B = length of head and body; Hf = length of hindfoot; *iw* = least interorbital width; *l* = greatest length of skull; m^1 = length of first upper molar; m^1 m^1 = distance between outer surfaces of first upper molars; m^2 m^2 = distance between outer surfaces of second upper molars; m^3 m^3 = distance between outer surfaces of third upper molars; m_1 = mandibular length; *ms* = width of mesopterygoid space; *mtr* = length of maxillary tooth-row; *mw* = maxillary width; *n* = nasal length; *on* = occipitonasal length; *orb* = length of orbit; *pl* = palatal length; pm^4 = length of fourth upper premolar; *pow* = postorbital width; Subad. = subadult; Tb = length of tibia; Tl = length of tail; Tr = length of tragus; ZSI = Zoological Survey of India; *zw* = zygomatic width.

In most cases, authority citations for locality records have not been provided, as these have either been given by Agrawal *et al.* (1992) or have been mentioned above under 'Earlier publications'

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
	ORDER INSECTIVORA										
	Family TALPIDAE										
1.	*Talpa micrura* Hodgson	+									
2.	*Talpa leucura* Blyth						+	+			
	Family SORICIDAE										
3.	*Suncus murinus soccatus* (Hodgson)						+				
4.	*Suncus murinus griffithi* (Horsfield)	+									+
5.	*Suncus murinus fulvocinereus* (Anderson)						+				
6.	*Suncus etruscus nudipes* (Blyth)						+	+			
7.	*Crocidura attenuata rubricosa* (Anderson)	+					+	+			
8.	*Crocidura fuliginosa* (Blyth)	+					+				
9.	*Anourosorex squamipes* (Milne-Edwards)						+	+			
	ORDER SCANDENTIA										
	Family TUPAIIDAE										
10.	*Tupaia glis belangeri* (Wagner)						+				
11.	*Tupaia glis assamensis* Wroughton	+	+				+				

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
	ORDER CHIROPTERA										
	Family PTEROPODIDAE										
12.	*Rousettus leschenaulti leschenaulti* (Desmarest)	+	+	+			+	+			
13.	*Pteropus giganteus giganteus* (Brunnich)	+									
14.	*Cynopterus sphinx sphinx* (Vahl)	+	+	+			+	+			
15.	*Econycteris spelaea spelaea* (Dobson)			+			+	+			
16.	*Macroglossus sobrinus sobrinus* Andersen							+			
	Family MEGADERMATIDAE										
17.	*Megaderma lyra lyra* E. Geoffroy	+									
	Family RHINOLOPHIDAE										
18.	*Rhinolophus affinis himalayanus* Andersen						+	+			
19.	*Rhinolophus pusillus blythi* Andersen	+									
20.	*Rhinolophus lepidus lepidus* Blyth							+			
21.	*Rhinolophus subbadius* Blyth								+		
22.	*Rhinolophus luctus perniger* Hodgson							+		+	

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
23.	*Rhinolophus pearsoni* Horsfield				+			+	+		
24.	*Hipposideros larvatus leptophyllus* (Dobson)	+				+	+			+	
25.	*Hipposideros lankadiva* Kelaart			+							
26.	*Hipposideros pomona gentilis* Andersen			+							
27.	*Hipposideros cineraceus* Blyth						+				
28.	*Hipposideros armiger armiger* (Hodgson)						+	+	+		
29.	*Coelops frithi frithi* Blyth						+				
	Family MOLOSSIDAE										
30.	*Tadarida plicata plicata* (Buchannan)						+				
	Family VESPERTILIONIDAE										
31.	*Myotis siligorensis siligorensis* (Horsfield)							+			
32.	*Myotis formosus formosus* (Hodgson)						+				
33.	*Myotis horsfieldii* (Temminck)							+			
34.	*Eptesicus pachyotis* (Dobson)									+	

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
35.	*Pipistrellus coromandra coromandra* (Gray)							+			
36.	*Pipistrellus mimus* Wroughton	+					+				
37.	*Pipistrellus austenianus* Dobson						+				
38.	*Pipistrellus circumdatus* (Temminck)						+				
39.	*Ia io* Thomas						+				
40.	*Tylonycrtes pachypus fulvida* (Blyth)	+									
41.	*Barbastella leucomelas darjelingensis* (Hodgson)							+		+	
42.	*Scotomanes ornatus ornatus* (Blyth)		+				+	+			
43.	*Scotophilus kuhki kuhli* Leach								+		
44.	*Scotophilus heathi heathi* (Horsfield)	+									
45.	*Plecotus auritus homochrous* Hodgson									+	
46.	*Miniopterus schreibersi fuliginosus* (Hodgson)			+							
47.	*Murina tubinaris* (Scully)							+			
48.	*Murina cyclotis cyclotis* Dobson						+	+			
49.	*Harpiocephalus mordax* Thomas						+				

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
50.	*Kerivoula hardwickei depressa* Miller			+				+			
	ORDER PRIMATES										
	Family LORISIDAE										
51.	*Nycticebus coucang bengalensis* (Lacepede)	+	+				+				
	Family CERCOPITHECIDAE										
52.	*Macaca nemestrina leonina* Blyth		+								
53.	*Macaca mulatta* (Zimmermann)								+		
54.	*Macaca assamensis* (M'Clelland)								+		
55.	*Macaca arctoides* (I. Geoffroy)								+		
56.	*Presbytis entellus* (Dufresne)		+								
57.	*Presbytis pileatus* (Blyth)	+	+	+	+	+	+	+			
	Family HYLOBATIDAE										
58.	*Hylobates hoolock* (Harlan)	+	+	+	+	+					
	ORDER PHOLIDOTA										
	Family MANIDAE										
59.	*Manis pentadactyla aurita* Hodgson			+			+				

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
	ORDER CARNIVORA										
	Family CANIDAE										
60.	*Canis aureus* Linnaeus	+	+	+				+			
61.	*Vulpes bengalensis* (Shaw)								+		
62.	*Cuon alpinus* (Pallas)	+	+	+							
	Family URSIDAE										
63.	*Selenarctos thibetanus* (G. Cuvier)	+	+	+							
64.	*Helarctos malayanus* (Raffles)	+	+	+							
65.	*Melursus ursinus* (Shaw)	+	+	+		+	+				
66.	*Ailurus f. fulgens* F. Cuvier	+	+	+							
	Family MUSTELIDAE										
67.	*Martes flavigula flavigula* (Boddaert)	+									
68.	*Mustela kathiah* (Hodgson)				+		+				
69.	*Melogale personata nipalensis* (Hodgson)									+	
70.	*Arctonyx collaris collaris* F. Cuvier	+	+	+	+			+			
71.	*Lutra lutra monticola* Hodgson							+			
72.	*Lutra perspicillata perspicillata* I. Geoffroy	+									
73.	*Aonyx cinerea concolor* (Rafinesque)	+						+			

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
	Family VIVERRIDAE										
74.	*Viverra zibetha zibetha* Linnaeus					+	+	+			
75.	*Viverricula indica* (Desmarest)	+									
76.	*Paradoxurus hermaphroditus* (Pallas)		+								
77.	*Paguma larvata neglecta* Pocock		+							+	
78.	*Arctictis binturong* (Raffles)								+		
	Family HERPESTIDAE										
79.	*Herpestes auropunctatus* (Hodgson)							+			
80.	*Herpestes edwardsi* (Geoffroy)	+									
81.	*Herpestes urva* (Hodgson)	+	+								
	Family FELIDAE										
82.	*Felis chaus* Guldenstaedt	+	+	+							
83.	*Felis marmorata* Martin								+		
84.	*Felis temmincki* Vigors & Horsfield		+	+							
85.	*Felis bengalensis bengalensis* Kerr	+	+	+		+	+	+			
86.	*Neofelis nebulosa* (Griffith)	+	+	+							
87.	*Panthera pardus fusca* (Meyer)	+	+	+		+	+				
88.	*Panthera tigris tigris* (Linnaeus)	+	+	+							

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
	ORDER PROBOSCIDEA										
	Family ELEPHANTIDAE										
89.	*Elephas maximus indicus* G. Cuvier	+	+	+		+					
	ORDER ARTIODACTYLA										
	Family SUIDAE										
90.	*Sus scrofa cristatus* Wagner	+	+	+		+					
	Family CERVIDAE										
91.	*Muntiacus muntjak vaginalis* (Boddaert)	+	+	+		+	+				
92.	*Axis axis axis* (Erxleben)						+	+			
93.	*Axis porcinus* (Zimmermann)					+					
94.	*Cervus unicolor equinus* G. Cuvier	+	+	+		+	+				
95.	*Cervus duvaucelli* G. Cuvier						+				
	Family BOVIDAE										
96.	*Tetracerus quadricornis* (Blainville)	+									
97.	*Bos gaurus* H. Smith		+	+	+						
98.	*Bubalus bubalis* (Linnaeus)	?	?	?	?	?	?	?			
99.	*Capricornis sumatraensis* (Bechstein)	+	+	+			+				

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
100.	*Nemorhaedus goral* (Hardwicke)	+									
	ORDER LAGOMORPHA										
	Family LEPORIDAE										
101.	*Lepus nigricollis ruficaudatus* Geoffroy		+	+							
	ORDER RODENTIA										
	Family SCIURIDAE										
102.	*Belomys pearsoni* (Gray)										
103.	*Petaurista petaurista lylei* Bonhote		+								
104.	*Petaurista petaurista albiventer* (Gray)	+				+	+				
105.	*Petaurista alborufus candidulus* Wroughton						+				
106.	*Petaurista magnificus* (Hodgson)		+								
107.	*Hyolpetes alboniger alboniger* (Hodgson)						+	+			
108.	*Callosciurus erythraeus erythraeus* (Pallas)	+	+				+	+			
109.	*Callosciurus erythraeus erythrogaster* (Blyth)	+	+			+	+	+			
110.	*Callosciurus pygerythrus blythi* (Tytler)	+	+			+	+	+			

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
111.	*Callosciurus macclellandi macclellandi* (Horsfield)						+				
112.	*Dremomys lokriah lokriah* (Hodgson)						+				
113.	*Dremomys lokriah macmillani* Thomas	+									
114.	*Funambulus pennanti* Wroughton										+
115.	*Ratufa bicolor gigantea* (M'Clelland)	+	+			+					
	Family HYSTRICIDAE										
116.	*Atherurus macrourus assamensis* Thomas						+				
117.	*Hystrix hodgsoni* (Gray)	+									
	Family RHIZOMYIDAE										
118.	*Rhizomys pruinosus pruinosus* Blyth		+				+				
119.	*Cannomys badius badius* (Hodgson)		+				+	+			
	Family MURIDAE										
120.	*Chiropodomys gliroides gliroides* (Blyth)						+	+			
121.	*Vandeleuria oleracea dumeticola* (Hodgson)						+	+			
122.	*Micromys minutus erythrotis* (Blyth)						+				
123.	*Rattus rattus rufescens* (Gray)						+				

District-wise distribution of mammals in Meghalaya

Sl. No.	Name of taxon	WEST GARO HILLS	EAST GARO HILLS	SOUTH GARO HILLS	WEST KHASI HILLS	RI-BHOI	EAST KHASI HILLS	JAINTIA HILLS	GARO HILLS	KHASI HILLS	KHASI-JAINTIA HILLS
124.	*Rattus rattus brunneusculus* (Hodgson)	+	+		+	+	+	+			
125.	*Rattus rattus tistae* Hinton	+	+			+	+	+			
126.	*Rattus nitidus nitidus* (Hodgson)	+	+	+		+	+	+			
127.	*Rattus norvegicus* (Berkenhout)						+				
128.	*Rattus ?bowersi mackenziei* (Thomas)						+				
129.	*Rattus sabanus garonum* Thomas	+	+			+		+			
130.	*Niviventer niviventer mentosus* Thomas					+	+				
131.	*Niviventer fulvescens fulvescens* (Gray)	+				+	+	+			
132.	*Mus musculus castaneus* Waterhouse						+	+			
133.	*Mus musculus homourus* Hodgson								+		
134.	*Mus booduga booduga* (Gray)	+	+				+	+			
135.	*Mus cervicolor cervicolor* Hodgson						+		+		
136.	*Mus cervicolor nagarum* (Thomas)						+	+			
137.	*Mus pahari jacksoniae* (Thomas)	+					+	+			
138.	*Bandicota bengalensis bengalensis* (Gray)						+	+			
139.	*Bandicota indica nemorivaga* (Hodgson)						+	+			

Order INSECTIVORA

Small animals with short, closely set fur, pointed snout projecting beyond lower jaw, small ears and eyes, short fore limbs and five toes; orbits open posteriorly; zygomatic arches may be present or absent; upper and lower incisors conical, unicuspidate or with basal cusp only, lower ones unpectinate; upper true molars broad, multicuspidate, with more or less well defined W-shaped crown.

The order Insectivora is represented in Meghalaya by two families, namely, Talpidiae and Soricidae.

Key to the families of the order INSECTIVORA

Zygomatic arches present, bullae ossified ..... TALPIDAE

Zygomatic arches absent, bullae imperfect ..... SORICIDAE

Family TALPIDAE

Only the genus *Talpa* of the family Talpidae occurs in Meghalaya.

Genus ***Talpa*** Linnaeus, 1758

Very short velvety fur; minute eyes; pinnae absent; broad fore paws; outwardly directed heavy claws; scantily haired small tail.

Two species of the genus *Talpa* occur in Meghalaya.

Key to the species of the genus ***Talpa***

Tail very short, concealed by fur ..... *Talpa. micrura*

Tail club-shaped, about one twelfth of total length ..... *T. leucura*

1. ***Talpa micrura*** Hodgson

1841. *Talpa micrurus* Hodgson, *Calcutta J. nat. Hist.*, 2 : 221 (Central and northern Hills, Nepal).

Common names : Eastern Mole, Short-tailed Mole (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : Small, about 130.0 mm in head and body length; tail about 3 mm, burried in fur; colour steely black or brown; snout and feet flesh-coloured.

Distribution : India : Meghalaya : West Garo Hills district; Arunachal Pradesh; Assam; Nagaland; Sikkim; West Bengal. Nepal, Bangladesh.

2. ***Talpa leucura*** Blyth

1850. *Tapa leucrura* Blyth, *J. Asiat. Soc. Beng.*, 19 : 215 (Cherra Punji, East Khasi Hills district, Meghalaya, India).

Common names : Eastern Mole, White-tailed Mole (Eng.).

Material examined : East Khasi Hills district : 1 ♀ Cherra Punji (*c* 1,417 m), coll. R. W. G. Frith, 1851. Jaintia Hills district : 1 ♂ Shangpung (*c* 1,400 m), coll. H. W. Wells, 8.vii.1920.

Measurements : External : 1 ♂ : HB 112.0; Tl 13.0; Hf 14.0.

Diagnosis : Smaller than *Talpa. micrura,* but with shorter muzzle and longer tail; covered with long white hairs.

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district; Assam. Myanmar, Thailand.

Family SORICIDAE

Small, mouse-like mammals covered with velvety fur; muzzle narrow and elongated; eyes very small; ear-conch small, protruding through fur or covered by it; limbs short; soles of fore feet smaller than those of hind feet; zygomatic arches absent; auditory bones not forming bullae but possessing annular shape.

Three genera of the family Soricidae occur in Meghalaya.

Key to the genera of the family SORICIDAE

1 Ear-conch and tail well develoed 2

Ear-conch small; tail very short ..... ***Anourosorex***

2. 18 teeth in upper jaw ..... ***Suncus***

16 teeth in upper jaw ..... ***Crocidura***

Genus ***Suncus*** Ehrenberg, 1833

Two species of the genus *Suncus* occur in Meghalaya

Key to the species of the genus ***Suncus***

Head and body length more than 93.0 mm ..... *Suncus murinus*

Head and body length less than 48.0 mm ..... *Suncus etruscus*

Suncus murinus (Linnaeus)

Three subspecies of *Suncus murinus* occur in Meghalaya.

Key to the subspecies of *Suncus murinus*

Tail compressed toward tip, somewhat rectangular in cross-section, interspersed with a few long hairs, ... *Suncus murinus. soccatus*

Tail gradually tapering toward tip, circular in outline and interspersed with many long hairs .....

..... *Suncus murinus griffithi*

Tail swollen at base, rather long and densely haired ..... *Suncus murinus fulvocinereus*

3. *Suncus murinus soccatus* (Hodgson)

1845. *Sorex soccatus* Hodgson, *Ann. Mag. nat. Hist.*, 15 : 270 (Central region of Nepal).

Common name : House Shrew (Eng.).

Material examined : East Khasi Hills district : 1 ♂ 1 Adol. ♀, Cherra Punji, coll. J. H. Bourne, F. Skipwith, 1846, 12.vii.1871.

Measurements : Nil.

Diagnosis : Fur long, 8.0 mm or more; dorsal colour uniform sorbid to brownish slaty.

Distribution : India : Meghalaya : East Khasi Hills district; Arunachal Pradesh; Assam; Nagaland; Sikkim; West Bengal. Nepal, Bhutan.

4. *Suncus murinus griffithi* (Horsfield)

1851. *Sorex griffithi* Horsfield, *Cat. Mammalia Mus. Hon. East-India Co.*, : 134 (Assam, according to Lindsay 1929).

Common name : House Shrew (Eng.).

Material examined : West Garo Hills district : 1 ♀, tura (*c* 424 m), coll. H. W. Wells, 25.ii.1920. Khasi and Jaintia Hills district : 1 ♂, on way from Nongkharari to Shillong, coll. H. Khajuria, 29.xii.1956.

Measurements : External : 1 ♂ : HB 130.0; Tl 70.0; Hf 20.0; E 12.0. 1 ♀ : HB 116.0; Tl 65.0; Hf 18.0; E 13.0. Cranial : 1 ♂ : *l* 30.5; *cb* 30.1; *pl* 14.7; *mtr* 14.2; *cw* 11.3; *iw* 6.0. 1 ♀ : *l* 28.4; *cb* 28.2; *pl* 13.9; *mtr* 14.0; *cw* 10.2; *iw* 5.7.

Diagnosis : Fur thick, more than 8.0 mm long; dorsal surface brown with rusty wash; ventral surface slightly lighter.

Distribution : India : Meghalaya : West Garo Hills district, Khasi and Jaintia Hills district; Arunachal Pradesh; Assam; Manipur; Nagaland; Uttar Pradesh; West Bengal. Bhutan, Bangladesh.

5. *Suncus murinus fulvocinereus* (Anderson)

1877. *Crocidura* (*Pachyura*) fulvocinerea Anderson, *J. Asiat. Soc. Beng.*, 46 : 263 (Gauhati = Guwahati, Kamrup district, Assam, India).

Common name : House Shrew (Eng.).

Material examined : East Khasi Hills district : 5 ♂ 4 ♀, Shillong, coll. E. D. Albinus, A. R. Lahiri, K. K. Mandal, --, 30.iv.1965, 29.vi.1970, 24.vi.1979.

Measurements : External : 5 ♂ : HB 110.0 183.0(144.8); Tl 62.0 78.0(70.0); Hf 20.0 22.0(21.0); E 10.0 14.0(12.0). 4 ♀ : HB 119.0 142.0(128.0); Tl 62.5 76.0(69.1); Hf 19.5 23.5 (20.8); E 11.0 13.0(12.1). Cranial : 2 ♂ : *l* 35.3, 37.8; *cb* 34.1, 36.5; *pl* 16.4, 18.4; *mtr* 14.5,

16.1; *cw* 12.6, 12.7 *iw* 6.1, 6.2. 2 ♀ : *l* 32.2, 34.6, *cb* 31.5, 33.8; *pl* 14.8, 15.4; *mtr* 13.0, 14.0; *cw* 11.2, 12.0; *iw* 5.7, 6.3.

Diagnosis : Similar to *Suncus murinus griffithi* and *S. m. soccatus*, but tail swollen at base, rather long and densely haired.

Distribution : India : Meghalaya : Est Khasi Hills district; Assam.

Suncus etruscus Savi

One subspecies of *Suncus etruscus* occurs in Meghalaya.

6. *Suncus etruscus nudipes* (Blyth)

1855. *Sorex nudipes* Blyth, *J. Asiat. Soc. Beng.*, 24 : 34 (Amherst, Tenasserim, southern Myanmar).

Common name : Savi's Pygmy Shrew (Eng.).

Material examined : East Khasi Hills district : 1 unsexed, Cherra Punji (*c* 1,417 m), coll. R. W. G. Frith, 1861.

Measurements : Nil.

Diagnosis : A very tiny shrew (head and body length about 44.0 mm) with a very short hind foot (*c* 7.9 mm) and seminude snout; dorsal surface rusty brown, ventral surface brownish.

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district; Assam. Myanmar.

Genus *Crocidura* Wagler, 1832

Only three small conical teeth behind each anterior uppr incisor.

Two species of the genus *Crocidura* are found in Meghalaya.

Key to the species and subspecies of the genus *Crocidura*

Snout moderately long, not much pointed and not densely clad with hairs; ears rather large, seminude ..... *Crocidura fuliginosa*

Snout pyramidal, well-clad with hairs; ears of moderate size, sparsely clad with hairs..... ..... *Crocidura attenuata rubricosa*

7. *Crocidura attenuata rubricosa* Anderson

1877. *Crocidura rubricosa* Anderson, *J. Asiat. Soc. Beng.*, 46(2) : 280 (Sibsagar, Sibsagar district, Assam, India).

Common name : Grey Shrew (Eng.).

Material examined : Jaintia Hills district : 1 ♂ Shangpung (*c* 1,219 m), coll. H. W. Wells, 11.vii.1920.

Measurements : Nil.

Diagnosis : Dorsal colour dark or reddish brown, ventral colour grey-brown with a silvery sheen; tail somewhat tetragonal, not swollen at base, 75.6 100% or more of head and body length; condylobasal length less than 21.6 mm.

Distribution : India ; Meghalaya ; West Garo Hills district, East Khasi Hills district, Jaintia Hills district; Arunachal Pradesh; Assam; Jammu & Kashmir; Punjab; Uttar Pradesh; West Bengal. Bhutan.

8. ***Crocidura fuliginosa*** (Blyth)

1855. *Sorex fuliginosus* Blyth, *J. Asiat. Soc. Beng.*, 24 : 362 (Schwegyin, near Pegu, Myanmar).

Common name : None.

Material examined : Garo Hills : 1 young ♀, coll. H. H. Godwin-Austen, 1870. East Khasi Hills district : 1 ♀, Cherra Punji, coll. H. H. Godwin-Austen, 1870.

Measurement : Nil.

Diagnosis : Dorsal colour dark grey to blackish with dull silvery sheen, ventrally lighter; tail rounded and rather thick at base (more so in breeding season), 59 92% of head and body length; condylobasal length more than 22.0 mm.

Distribution : India : Meghalaya : West Garo Hills district, East Khasi Hills district; Assam. Southern China, Malaysia, Sumatra, Java, Borneo, Sulawesi.

Genus ***Anourosorex*** Milne-Edwards, 1872

The genus ***Anourosorex*** is monospecific.

9. ***Anourosorex squamipes*** Milne-Edwards

1872. *Anourosorex squamipes* Milne-Edwards, *Rech. Hist. nat. Mammal.* : 264 (Probably Moupin, Sichuan, China).

Common name : Sichuan Burrowing Shrew (Eng.).

Material examined : East Khasi Hills district : 1 ♂ 1 ♀, 1 unsexed, Laban (*c* 1,430 m), Shillong, coll. A. K. Mandal, 4.iii.1964, 19, 28.vi.1964. Jaintia Hills district : 2 ♂ 1 ♀, Jowai (*c* 1,370 m), coll. H. W. Wells, 13, 30.vi.1920, 6.vii.1920; 1 ♂, 1 ♀ Shangpung (*c* 1,220 m), coll. H. W. Wells, 6, 7.viii.1920.

Measurements : External : 4 ♂ : HB 92.0 105.0(99.5); Tl 12.5 16.0(14.0); Hf 14.5 18.0 (15.8). 3 ♀ : HB 85.0 110.0(96.7); Tl 12.0 16.0(13.7); Hf 15.0 18.0(16.3). Cranial : 2 ♂ : *l* 26.2, 27.8; *cb* 23.9, 26.0; *pl* 10.8, 10.9; *cw* 14.5, 15.3; *mtr* 11.5, 12.0. 2 ♀ : *l* 26.6, 26.9; *cb* 24.5, 25.2; *pl* 11.4, 11.5; *cw* 13.9, 14.2; *mtr* 11.9, 12.1.

Diagnosis : Seminude snout; naked, scaly feet; hind foot from heel one and a half times the length of fore foot from wrists; tail about one sixth the length of head and body, naked and scaly.

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district; Arunachal

Pradesh; Assam; Manipur (Mandal *et. al.*, in press). Bhutan, Myanmar, sothern China, Taiwan, Vietnam, Thailand.

Remarks : Geographic variation in *Anourosorex squamipes* is rather confusing, more so in Indian limits. Mandal & Das (1970) have treated the Assam, Meghalaya and Arunachanl Pradesh populations (except the Bomdila population, treated as *A. s. schmidi* Petter, 1963) as *A. s. assamensis* Anderson, 1875, while Mandal *et al.* (in press) have considered the Manipur population as *A. s. squamipes.*

Order SCANDENTIA

Squirrel-like in appearance; snout long; long whiskers absent.

The order Scandentia comprises the family Tupaiidae only.

Family TUPAIIDAE

Lower lobe of ears smaller than upper; inner side of ears scantily haired.

Only one genus of the family Tupaiidae, namely, *Tupaia*, occurs in Meghalaya.

Genus ***Tupaia*** Raffles, 1821

The genus *Tupaia* is represented in Meghalaya by a single species, *Tupaia glis*, with two subspecies under it.

Key to the subspecies of *Tupaia glis*

Tail shorter than head and body, ventral colour ranging from Buff Yellow to Orange Buff .... *Tupaia glis assamensis*

Tail generally longer than head and body, ventral colour ranging from Maize Yellow to Buff Yellow ..... *Tupaia glis belangeri*

10. ***Tupaia glis belangeri*** (Wagner)

1841 *Cladobates belangeri* Wagner, *Schriber's Saugeth. Suppl.*, 2 : 42 (Siriam, near Yangon, Pegu, Myanmar).

Common name : Common Tree-Shrew (Eng.).

Material examined : East Khasi Hills district : 1 unsexed, Cherra Punji (*c* 1,400 m), coll. R. W. G. Frith, 1857.

Measurements : External : None. Cranial : 1 unsexed : *l* 46.8; *on* 43.6; *cb* 43.3; *pl* 24.1; *mtr* 23.4; *b* 9.1; *cw* 18.7; *zw* 25.3; *iw* 13.2

Distribution : India : Meghalaya : East Khasi Hills district. Myanmar.

11. ***Tupaia glis assamensis*** Wroughton

1921 ***Tupaia belangeri assamensis*** Wroughon, *J. Bombay nat. Hist. Soc.*, 27 : 599 (Mokokchung, *ca* 5,000 ft., Naga Hills, Assam = Mokokchung, *c* 1,524 m, Nagaland, India).

Common name : Common Tree-Shrew (Eng.).

Material examined : West Garo Hills district : 1 ♂ 1 subad. ♂ 1 young ♂ Tura (*c* 424 m), coll. H. W. Wells, S. W. Kemp, 26.iii.1920, viii.1917. East Garo Hills district : 1 ♂ Rongrengiri, coll. H. Khajuria, 28.i.1957. East Khasi Hills district : 1 subad. ♀, Laitkynsao (*c* 762 m), coll. H. W. Wells, 28.iv.1920.

Measurements : External : 2 ♂ : HB 188.0, 200.0; Tl 160.0, 175.0; Hf 41.0(2); E 16.0, 17.0. 1 ♀ : HB 98.0; Tl 88.0; Hf 28.0; E 11.0. Cranial : 2 ♂ : *l* 48.8, 49.7; *cb* 46.6, 47.2; *pl* 26.1, 26.5; *mtr* 24.9, 25.8; *cw* 19.1, 19.2; *iw* 13.6, 14.5.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, East Khasi Hills district; Arunachal Pradesh; Assam; Manipur; Nagaland.

Order CHIROPTERA

Forelimbs modified into wings; wing-membrane (patagium) supported by elongated metacarpals and phalanges (except first) and extends to sides of body and leg; an interfemoral membrane between legs and tail; claw on first digit (also on second digit in many); knee directed outward and backward; legs weak; all digits end in curved and pointed claw; size generally small; eyes usually small; ears moderate to large; testes abdominal, descending into temporary scrotum during reproductive phase only.

The order Chiroptera is divided into two suborders, both of which are represented in Meghalaya.

Suborder MEGACHIROPTERA

Second finger bears a claw (except *Eonycteris*) and more or less independent of third finger; noseleaf absent; eyes large; margin of ear forms complete ring; tragus absent; tail rod-like and short, often absent; premaxilla well-developed, but lacks palatal branch; postorbital process usually well-developed; bony palate continued behind last molars; cochlea small, dose not compress basioccipital; molars not tuberculate, with a longitudinal furrow; lower incisors never more than two; frugivorous or nectarivorous; orientation by eyes.

Family PTEROPODIDAE

The suborder Megachiroptera consists of the single family Pteropodidae whose characters have been enumerated above.

Two subfamilies of the family Pteropodidae occur in Meghalaya.

Key to the subfamilies of the family PTEROPODIDAE

Inner margin of nostril projecting, muzzle moderate to short, teeth strong ..... PTEROPODINAE

Inner margin of nostril not projecting, muzzle long and slender, teeth weak .... MACROGLOSSINAE

Three species and subspecies belonging to three different genera of the subfamily Pteropodinae occur in Meghalaya.

Key to the genera, species and subspecies of the subfamily PTEROPODINAE

1 Upper part of one colour throughout 2

Upper part not of one colour throughout..... *Pteropus giganteus giganteus*

2. Five upper and six lower cheeck-teeth ..... *Rousettus leschenaulti leschenaulti*

Four upper and five lower check-teeth ..... *Cynopterus sphinx sphinx*

Genus ***Rousettus*** Gray, 1821

Only one species and subspecies of the genus *Rousettus* occur in Meghalaya.

12. ***Rousettus leschenaulti leschenaulti*** (Desmarest)

1820. *Pteropus leschenaulti* Desmarest, *Encycl. Me'th. Mammal.*, 1 : 110 (Environments of Pondicherry, India).

Common name : Indian Fulvous Fruit Bat (Eng.).

Material examined : East Garo Hills district : 1 ♂ 1 ♀, Darugiri (*c* 426 m), coll. R. K. Ghose, 1.vii.1988; 2 ♂ 3 ♀, Tasek, coll. A. K. Mandal, 6,7,8.xii.1988; 1 ♀ Williamnagar, coll. A. K. Mandal, 5.xii.1988. South Garo Hills district : 55 ♂ 84 ♀, Siju Cave, coll. S. W. Kemp & B. N. Chopra, Y P. Sinha, C. B. Srivastava, A. S. Rajagopal, G. M. Yazdani, .ii.1922, .v.1961, 5.iii.1965, 21.ii.1971, 20-23.xi.1990, 27-28.vi.1991, 16-19.ii.1992, 7-9.viii.1992. East Khasi Hills district : 1 ♂, Lailad, coll. Y P. Sinha, 17.v.1989; 1 ♀, Sumer, coll. Y P. Sinha, 6.v.1990. Jaintia Hills district : 4 ♂ 1 ♀, Umkiang, coll. A. K. Mandal, Y P. Sinha, 26.xi.1988, 22, 23.iv.1990.

Measurements : External : 10 ♂ : Fa 67.2 88.3(79.9); Tl 11.0 20.7(16.7); E 16.6 21.0 (18.9); Tb 30.5 - 41.7 (36.5); F & Cl 18.5 23.0(20.3). 5 ♀ : Fa 71.9 85.0(76.5); Tl 11.0 16.0 (14.5); E 15.6 21.0 (17.7); Tb(2) 29.9, 32.5; F & Cl 15.3 24.0(20.7). Cranial : 6 ♂ : *l* 36.0 39.5 (38.0); *cr* 11.0 12.1(11.5); *mtr* 12.0 14.8(13.9); c^1 c^1 7.7 8.4(8.1); *iw* 7.4 8.7(8.0); *cw* 15.0 - 16.0(15.6); *zw* 20.7 24.2(23.0); m^3 m^3 10.7 11.6(11.2); *ml* 27.2 29.5(28.6). 3 ♀ : *l*(2) 35.8, 38.0; *cr*(2) 10.5, 11.5; *mtr* 13.3 14.0(13.5); c^1 c^1 (1) 7.2; *iw*(1) 8.8; *cw* 15.0 16.0 (15.4); *zw* 20.2 27.0(23.0); m^3 m^3 10.2 11.0(10.6); *ml* 26.8 30.0(28.4).

Diagnosis : A medium-sized (forearm around 80.0 mm) fruit bat with longish muzzle and large eyes; tail reduced and rod-like; ear with a notch at lower edge; dorsal colour light brown with a rufescent tone, ventral colour a shade lighter; back of neck and shoulders sparsely haired; last lower molar elliptical.

Distribution : India : Meghalaya : West Garo Hills district (specimen in AMNH), East Garo Hills district, South Garo Hills district (Das 1986*b*), East Khasi Hills district, Jaintia Hills district; widely distributed in the Indian mainland, east to Arunachal Pradesh (Rookmaaker & Bergmans 1981), north to Jammu & Kashmir (Chakraborty 1983) and south to Kerala (Wroughton 1921). Pakistan (Siddiqi

1961*a*), Nepal, Sri Lanka (Sinha 1969), Bangladesh (Khan 1982), Bhutan (Chakraborty 1975), Myanmar, southern China (Andersen 1912, Allen 1938) including Tibet (Cai & Zhang 1981), Hong Kong (*ex* Allen 1938), Vietnam, Laos (Phillips 1967), possibly Cambodia (Rookmaaker & Bergmans 1981), Thailand.

Remarks : Ellerman & Morrison-Scott (1966) have treated *Rousettus seminudus* (Kelaart, 1850) of Sri Lanka as a species distinct from *Rousettus leschenaulti*, but Sinha (1969), finding no valid differences between Indian population of *Rousettus leschenaulti* and the Sri Lankan *Rousettus seminudus*, has synonymised the latter with the former.

Genus ***Pteropus*** Brisson, 1762

Only one species and subspecies of the genus *Pteropus* occurs in Meghalaya.

13. ***Pteropus giganteus giganteus*** (Brünnich)

1782. *Pteropus gigantea* Brunnich, *Dyrenes Hist. Dyre-Saml. Univ. Natur-Theater*, 1: 45 (Bengal = West Bengal, India).

Common name : Indian Flying Fox (Eng.).

Material examined : None.

Measurement : Nil.

Diagnosis : Largest bat of Meghalaya; rufous-brown around head and neck; a conspicuous orange or honey-coloured band across upper back; lower back blackish brown; ventral parts dark chestnut brown; naked skin of wings, uropatagium, ears and muzzle jet black; no external tail; a narrow flap of skin inside each leg.

Distribution : India : Meghalaya : West Garo Hills district (specimen in AMNH); widely distributed throughout the Indian Union, including Andaman Islands (Mason 1908). Pakistan (Blanford 1891), Nepal, Sri Lanka, Bangladesh (Blyth 1863*a*), Myanmar.

Remarks : Ellerman & Morrison-Scott (1966) have treated the Nepal, Assam and Manipur populations as *Pteropus giganteus leucocephalus*. But most of earlier workers (Blyth 1863*a*); Hutton 1872; Dobson 1876, 1878; Blanford 1891) have considered both the Nepal and Assam populations of the Indian Flying Fox not different from those of other parts of India. Hutton (1872) has discussed colour variation in this species and has concluded that there is 'an almost endless variety of colouring' Also, Siddiqi (1961*a*) has identified *Pteropus giganteus giganteus* from Shillong, Meghalaya (part of undivided Assam). Recently, Agrawal & Bhattacharyya (1977) have found overlapping characters between *leucocephalus* and the nominate subspecies, and, therefore, have questioned the validity of *leucocephalus*. On the basis of the above-mentioned findings, *Pteropus giganteus leucocephalus* is hereby treated as a synonym of the nominate subspecies.

The Indian Flying Fox comes to the hills for feeding at night, and apparently does not roost there.

Genus ***Cynopterus*** F. Cuvier, 1824

Only one species and subspecies of the genus *Cynopterus* occurs in Meghalaya.

14. ***Cynopterus sphinx sphinx*** (Vahl)

1797. *Vespertilio sphinx* Vahl, *Skr. Naturh-Selsk. Copenhagen,* 4 : 123 (Tranquebar, Thanjavur district, Tamil Nadu, India).

Common name : Short-nosed Fruit Bat (Eng.)

Material examined : West Garo Hills district : 2 ♀, Kherapara, coll. R. K. Ghose, 21. vii. 1988; 4 ♂ Sibbari,1 ♀, coll. R. K. Ghose, 14. vii. 1988; 1 ♀, Tura (*c* 1,189 m), coll. S. W. Kemp, vii viii. 1917. East Garo Hills district : 3 ♂ 1 ♀, Darugiri (*c* 426 m), coll. R. K. Ghose, 1. vii. 1988; 4 ♂ 5 ♀, Rongrengiri (*c* 395 m), coll. R. K. Ghose, 8. vii. 1988; 1 ♂ 2 ♀, Songsak (*c* 426 m), coll. R. K. Ghose, 2. vii. 1988; 3 ♂, 3 ♀, Williamnagar, coll. A. K. Mandal, 5. xii. 1988. South Garo Hills district : 3 ♂ 4 ♀, Baghmara (*c* 93 m), coll. R. K. Ghose, 14. iv. 1986. East Khasi Hills district : 1 ♂ Cherra Punji, coll. J. H. Bourne, 1872. Jaintia Hills district : 12 ♂ 6 ♀, Umkiang, coll. A. K. Mandal, Y P. Sinha, 24 26. xi. 1988, 22. iv. 1990.

Measurements : *External :* 33 ♂ : Fa 60.0 73.5(67.9); Tl 10.0 16.6(12.3); E 17.8 22.0 (20.0); Tb 23.2 30.0(25.8); F & Cl 11.7 17.0(14.5). 12 ♀ : Fa 63.6 71.4 (68.8); Tl(5) 11.0 16.0(13.2); E 14.0 21.0(19.3); Tb 21.3 28.5(25.3); F & Cl 12.3 16.4(14.4). Cranial : 10 ♂ 1 31.4 33.1(32.2); *cb* 29.6 31.9(30.7); *cr* 7.3 8.4(7.9); *mtr* 10.7 11.7(11.4); c^1 c^1 6.3 7.0(6.7); *iw* 5.5 6.6(6.1); *cw* 13.2 13.9(13.5); *zw* 19.6 - 21.0(20.3); m^1 m^1 9.0 9.8(9.5); *c* m_2 11.7 12.2; *ml* 22.2 24.7(23.2). 10 ♀ : 1 30.0 32.3(31.5); *cb* 29.9 30.7(30.2); *cr* 7.3 8.2 (7.6); *mtr* 10.3 11.3(10.7); c^1 c^1 6.1 7.0(6.6); *iw* 5.6 6.7(6.1); *cw* 12.9 13.8(13.4); *zw* 18.9 20.7(19.6); m^1 m^1 8.9 10.2 (9.5); *c* m^2 11.3 12.2(11.5); *ml* 21.4 23.2(22.6).

Diagnosis : Medium-sized (forearm around 70.0 mm) fruit bat white margin to ears; metacarpals and phalanges whitish; nostrils divergent with deep internarial groove; dorsal colour grey or greyish brown, paler ventrally (often with a broad rufescent or chestnut area around shoulders and throat); naked skin of wings, muzzle, etc., blackish brown; tail reduced and rod-like.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, East Khasi Hills district Dobson 1876, Jaintia Hills district; widely distributed throughout the mainland of the Indian Union. Pakistan (Anderson 1881), Nepal (Fray 1925), Sri Lanka, Bangladesh, Myanmar.

Remarks : Name of the specimens reported from the Siju Cave, South Garo Hills district by Kemp (1924) as *Cynopterus sphinx gangeticus* Andersen, 1910 and subsequently listed as *Cynopterus sphinx sphinx* by Kurup (1968), belong to the present taxon.

The Short-nosed Fruit Bat is one of the commonest bats of Meghalaya.

Subfamily MACROGLOSSINAE

Two species and subspecies belonging to two genera of the subfamily Macroglossinae occur in Meghalaya.

Key to the genera, species and subspecies of the subfamily MACROGLOSSINAE

Size large (forearm around 70.0 mm), no claw on second finger of wing ....*Eonycteris spelaea spelaea*

Size small (forearm around 50.0 mm), claw on second finger of wing .....
.....*Macroglossus sobrinus sobrinus*

Genus ***Eonycteris*** Dobson, 1873

Only one species and subspecies of the genus ***Eonycteris*** occurs in Meghalaya.

15. ***Eonycteris spelaca spelaca*** (Dobson)

1871 *Macroglossus spelaeus* Dobson, *Proc. Asiat. Soc. Beng.* : 105, 106 (Farm Caves, Moulmein, Tenasserim, Myanmar).

Common name : Dobson's Long-tongued Fruit Bat (Eng.).

Material examined : South Garo Hills district : 28 ♂, 22 ♀ : Siju Cave, coll. S. W. Kemp & B. N. Chopra, Y P. Sinha, ii. 1922, 21-23.xi.1990, 16-19.ii.1992. East Khasi Hills district : 4 ♀ : Lailad, coll. Y P. Sinha, 17.v.1989. Jaintia Hills district : 1 ♂ 1 ♀ : Umkiang, coll. Y P. Sinha, 22, 23. iv. 1990.

Measurements : External : 2 ♂ : Fa 73.0(2); Tl 15.0, 19.0; E 20.0, 21.0; F & Cl 19.0, 20.0. 5♀ : Fa 67.0 72.5(69.6); Tl(4) 17.0 14.0(15.5); E(4) 17.5 18.0 (17.9); Tb(2) 28.0, 30.0; F & Cl(4) 16.0 19.0(18.0). Cranial : 3 ♀ : *l* 34.0 35.5(35.0); *cr*(2) 7.0, 7.6; *mtr* 12.0 13.0 (12.5); *cw* 14.0 15.0(14.6); *zw*(2) 19.0, 20.0; m^2 m^2 8.3 9.2(8.8); *c* m_3 13.0 13.5(13.2); *ml* 26.0 27.0(26.5).

Diagnosis : Very much like the Indian Fulvous Fruit Bat, but second finger lacks a claw; small reniform perianal gland on either side of anus; fur short and scanty; back brownish, head darker, ventral surface rather greyish; back of neck more thinly haired; adult males with yellowish red ruff on neck.

Distribution : India : Meghalaya : South Garo Hills district (Sinha 1990), East Khasi Hills district, Jaintia Hills district; Uttar Pradesh (Bhat 1968*a*); Karnataka (Bhat *et al.* 1980); Andhra Pradesh (specimens in ZSI); West Bengal (specimens in ZSI); Sikkim (Mistry 1991); Assam (Ghose & Bhattacharyya 1976); Arunachal Pradesh (specimens in ZSI); Andaman Islands (Bhattacharyya 1975). Myanmar, southern China (Honacki *et al.* 1982), Vietnam, Laos, Cambodia, Thailand, Malay Peninsula and nearby islands, Sumatra, possibly Borneo.

Remarks : One of the spcimens reported as *Cynopterus sphinx gangeticus* by Kemp (1924) is actually an example of the present taxon (reported by Sinha 1990).

Genus ***Macroglossus*** F. Cuvier, 1824

Only one species and subspecies of the genus *Macroglossus* occurs in Meghalaya.

16. ***Macroglossus sobrinus sobrinus*** Andersen

1911. *Macroglossus minimus sobrinus* Andersen, *Ann. Mag. nat. Hist.*, 7 : 642 (Gonong Igari, 2000 = *c* 610 m, Perak, Peninsular Malaysia).

Common name : Greater Long-tongued Fruit Bat (Eng.).

Material examined : Jaintia Hills district : 1 ♂ Umkiang, coll. A. K. Mandal, 26.xi.1988.

Measurements : External 1 ♂ : Fa 48.3; Tl -; E 17.3; Tb 18.8; F & Cl 11.9. Cranial : 1 ♂ : *l* 30.3; *cr* 10.8; *mtr* 9.6; c^1 c^1 6.1; *iw* 4.9; *cw* 12.1; *zw* 16.3; m^1 m^1 6.5; *c* m^3 11.0; *ml* 22.1.

Diagnosis : A small (forearm around 50.0 mm) fruit bat (smallest of fruit bats of Meghalaya) with very long head; pelage longish and light reddish brown, chest more brown; tail rod-like and short; interfemoral membrane narrow; muzzle long and cylindrical; nostrils upward-pointing and separated by an ill-defined groove; tongue quite long with feathery tip.

Distribution : India : Meghalaya : Jaintia Hills district; West Bengal; Tripura (specimen in ZSI); Arunachal Pradesh (Saha 1985, as *Macroglossus minimus*). Myanmar, and Thailand to Sumatra, Nias Island, Krakatoa Island and Java (Hill 1983).

Remarks : Ellemran & Morrison-Scott (1966) have maintained *sobrinus* as a subspecies of *Macroglossus minimus* (E. Geoffroy, 1810). Most of the recent authors (Lekagul & McNeely 1977, Honacki *et al.* 1982, Hill 1983, Corbet & Hill 1986), however, consider *minimus* and *sobrinus* as distinct species.

Suborder MICROCHIROPTERA

Second finger does not bear a claw and closely associated with third finger; noseleaf present in many; eyes small; margin of ear not forming complete ring; tragus usually present; tail partly or wholly associated with interfemoral membrane, often quite long, absent in some; premaxilla with or without maxillary branch; postorbital process usually reduced or absent; bony palate does not continue laterally behind last molars; cochlea large, usually compresses basioccipital; molars with sharp cusps; lower incisors usually three; usually insectivorous, few also carnivorous.

The suborder Microchiroptera in Meghalaya consists of four families.

Key to the families of the SUBORDER MICROCHIROPTERA

1. Both noseleaf and tragus present ..... MEGADERMATIDAE
   Either noseleaf or tragus present, but not both 2
2. A noseleaf, but no tragus present ..... RHINOLOPHIDAE
   No nose leaf, but tragus present 3
3. Tail entirely enclosed in interfemoral membrane ..... VESPERTILIONIDAE
   Distal portion of tail free from interfemoral membrane..... MOLOSSIDAE

Family MEGADERMATIDAE

Only one species and subspecies of the genus *Megaderma* of the present family occurs in Meghalaya.

Genus ***Megaderma*** E. Geoffroy, 1810

Only one species and subspecies of the genus *Megaderma* occurs in Meghalaya.

17. ***Megaderma lyra lyra*** E. Geoffroy

1810. *Megaderma lyra* E. Geoffroy, *Annls Mus. Hist. nat. Paris,* 15 : 190 (India, probably Madras, Madras district, Tamil Nadu).

Common name : Indian False Vampire (Eng.).

Material examined : West Garo Hills district : 1 ♂, Kherapara, coll. N. Mazumdar, 18.xi.1988.

Measurements : External : 1 ♂ : Fa 62.5; E 36.7; Tr 15.7; Tb 33.3; F & Cl 19.4. Cranial : 1 ♂ : *l* 28.5; *ccl* 24.6; *cr* 7.3; *mtr* 11.2; c^1 c^1 5.4; *iw* 5.0; *cw* 12.4; *zw* 16.1; m^3 m^3 10.0; *c* m^3 12.5; *ml* 19.1.

Diagnosis : A medium-sized (forearm 60.0 70.0 mm) bat with large ears, noseleaf and large tragus, but without externally visible tail; dorsal colour slaty grey, ventral colour paler (darty white); ears conjoined for nealry half the length of inner margin; tragus bifid, posterior portion long, narrow and acutely pointed.

Distribution : India : Meghalaya : West Garo Hills district; widely distributed throughout the Indian mainland from Jammu & Kashmir to Cape Camorin (Dobson 1876) and from Gujarat to Assam (Hinton & Lindsay 1926). Afghanistan (Aellen 1959), Pakistan, Nepal (Anderson 1881), Sri Lanka, Bangladesh (Dobson 1876).

Remarks : Ellerman & Morrison-Scot (1951) considered the western Indian population of the species as *Megaderma lyra caurina,* but Sinha (1977), after reviewing the species, concluded that the entire Indian population belonged to the nominate subspecies.

Family RHINOLOPHIDAE

Noseleaf well developed and most complicated; ears rather large; tragus absent; eyes quite small; tail long (longer than femur) and mostly included in interfemoral membrane (except *Coelops*); inguinal false teats present; premaxillae partly cartilagenous and have palatal branches only, the two neither fusing with each other nor with maxillae; upper incisors minute; nasal region inflated; postorbital process absent; palate deeply emerginate both anteriorly and posteriorly; auditory bulla small; second digit of wing has no phalanges.

The noseleaf consists of three main parts, *viz.*, (i) anterior horizontal portion, (ii) median perpendicular portion and (iii) posterior errect portion.

The family Rhinolophidae has been divided into two subfamilies, *viz.* Rhinolophinae and Hipposiderinae.

Subfamily RHINOLOPHINAE

The anterior portion of the noseleaf is a thin, horseshoe shaped disc of naked skin with an angular deep median notch on its lower margin which partially or completely covers the muzzle. This anterior

horizontal part of the noseleaf is called the **horseshoe**. The nostrils lie recessed in the middle of this part. The median portion of the noseleaf is called the **sella**. It is an upright thickened structure. Behind the sella and between the eyes lies the third portion of the noseleaf, known as the **lancet**. It is a narrrow triangular structure whose distal part bends slightly forward. The base of the lancet is divided into cells by horizontal septa. A posterodorsal connecting process connects the sella with the lancet.

No frontal sac; basal portion of outer margin of ear deeply notched to form a distinct antitragus; sagittal crest well developed; cochlea large; hallux with two but other toes with three phalanges.

The subfamily Rhinolophinae consists of the genus *Rhinolophus* only.

Genus ***Rhinolophus*** Lacepe de, 1799

Six species and subspecies of the genus ***Rhinolophus*** occur in Meghalaya.

Key to the species and subspecies of the genus ***Rhinolophus***

1 Base of sella expanded making a trifolium-shaped structure, frontal depression very deep .... *Rhinolophus luctus perniger*

Base of sella not expanded and does not make a trifolium-shaped structure, frontal depression shallow 2

2. Connecting process beneath top of sella ..... *Rhinolophus pearsoni*

Connecting process as high as or higher than top of sella 3

3. Connecting process level with top of sella forming a shallow notch between them .... *Rhinolophus affinis himalayanus*

Connecting process higher than top of sella forming a deep notch between them 4

4. Zygomatic width less than 8.0 mm, maxillary tooth-row less than 6.0 mm .... *Rhinolophus pusillus blythi*

Zygomatic width more than 8.0 mm, maxillary tooth-row more than 6.0 mm 5

5. Metacarpal of fourth finger more than 79% of the length of forearm .... *Rhinolophus lepidus lepidus*

Metacarpal of fourth finger less than 79% of the length of forearm ..... *Rhinolophus subbadius*

18. ***Rhinolophus affinis himalayanus*** Andersen

1905. *Rhinolophus affinis himalayanus* Andersen, *Proc. zool. Soc. Lond.*, 2 : 103, pl. 3 (Masuri = Mussoorie, Dehra Dun district, Uttar Pradesh, India).

Common names : Intermediate Horseshoe Bat or Allied Horseshoe Bat (Eng.).

Material examined : East Khasi Hills district : 1 ♀, Cherra Punji, coll. H. W. Wells, 17.iv.1920. Jaintia Hills district : 1 ♂ Khonshnong, coll. H. W. Wells, 30.vii.1920; 2 ♂, 3 ♀, Shangpung, coll. H. W. Wells, 8.viii.1920.

Measurements : External : 3 ♂ : Fa 44.9 52.3(49.7); Tl 25.0 32.0(28.7); E 19.0 21.0(19.7);

Tb 19.9 25.0(22.8); F & Cl 10.4 11.0(10.8). 4 ♀ : Fa 50.0 51.4(50.6); Tl 24.0 30.0(25.5); E 17.0 18.0(17.3); Tb 22.4 24.4(23.7); F & Cl 10.3 11.9(11.3). Cranial : 3 ♂ : *l* 20.2 22.5(21.7); *ccl* 16.8 19.4(18.4); *mtr* 7.6 9.0(8.5); c^1 c^1 4.9 5.3(5.1); *iw* 2.2 2.5(2.4); *cw* 8.1 9.2(8.8); *zw* 9.9 11.5(10.8); m^3 m^3 ; *c* m_3 8.5 9.5(9.2); *ml* 13.1 15.5(14.5). 4 ♀ : *l* 21.8 23.0(22.2); *ccl* 18.0 18.8(18.6); *mtr* 8.5 -8.8(8.6); c^1 c^1(3) 4.7 5.6(5.1); *iw* 2.2 2.5(2.4); *cw* 9.0 9.3(9.1); *zw* 10.8 11.3(11.1); *c* m_3(3) 8.7 9.2(9.0); *ml* 14.7 15.1(15.0).

Diagnosis : A medium-sized (forearm around 50.0 mm) horseshoe bat with moderate ears (around 17.0 mm) and noseleaf; frontal sac absent; lower lip with three prominent mental grooves.

Distribution : India : Meghalaya : East Khasi Hills district (Hinton & Lindsay 1926), Jaintia Hills district (Hinton & Lindsay 1926); Uttar Pradesh; Tamil Nadu (specimen in ZSI); West Bengal. Nepal, Sri Lanka (Blyth 1863*a*, Sinha 1973), Bangladesh (Dobson 1876), Bhutan (Saha 1980), northern Myanmar, southern China.

Remarks : The Intermediate Horseshoe Bat is essentially a montane form.

19. ***Rhinolophus pusillus blythi*** Andersen

1918. *Rhinolophus blythi* Andersen, *Ann. Mag. nat. Hist.*, 2 : 376, 377 (Almora, Kumaon, 5500' = Almora, *c* 1,676 m, Almora district, Uttar Pradesh, India).

Common name : Least Horseshoe Bat (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : Small (forearm nearly 40.0 mm) horseshoe bat with horizontal base of sella arched and equal in width to vertical part; connecting process triangular in lateral view; tibia shorter (16.0 mm or less).

Distribution : India : Meghalaya : South Garo Hills district (Sinha 1973); Uttar Pradesh; West Bengal (Sinha 1973); Sikkim (specimen in ZSI); Assam (Hinton & Lindsay 1926; Sinha 1973). Nepal (Sinha 1973).

Remarks : Ellerman & Morrison-Scott (1966) considered *Rhinolophus blythi* and *Rhinolophus blythi szechwanus* Andersen, 1918 as two separate subspecies of *Rhinolophus cornutus* Temminck, 1835. Hill & Yoshiyuki (1980) have treated *Rhinolophus pusillus* Temminck, 1834 as a species distinct from the Japanese species *Rhinolophus cornutus*. Sinha (1973) has synonymised *szechwanus* with *blythi*. However, authors like Lekagul & McNeely (1977), Hill & Yoshiyuki (1980) have maintained these two as separate subspecies. Hill & Yoshiyuki's (1980) view that *blythi* is distributed in northern India and *szechwanus* in Sichuan, China, has been accepted here.

20. ***Rhinolophus lepidus lepidus*** Blyth

1844. *Rhinolophus lepidus* Blyth, *J. Asiat. Soc. Beng.*, 13 : 486 (Vicinity of Calcutta, Calcutta district, West Bengal, India, according to Das 1986*b*).

Common name : Little Indian Horseshoe Bat (Eng.).

Material examined : Jaintia Hills district : 1 ♀, Jowai, coll. A. Hussain, 10.ix.1983; ♀, Khonshnog, coll. H. W. Wells, 28.vii.1920; 1 ♂, Syndai, coll. H. W. Wells, 25.vi.1920.

Measurements : External : 1 ♂ : Fa 36.0; Tl 18.0; E 16.0; Tb 16.0; F & Cl 8.5. 2 ♀ : Fa 39.0; 40.0; Tl(1) 20.0; E(1) 16.0; Tb(1) 15.0; F & Cl (1) 8.0. Cranial : 1 ♂ : *l* 15.9; *mtr* 5.6; *cw* 7.3; *zw* 7.2; m^3 m^3 5.5; *c* m^3 6.7; *ml* 9.6. 2 ♀ : *l*(1) 15.5; *mtr* 5.6, 5.8; *cw* 6.3, 7.1; *zw* 7.1, 7.3; m^3 m^3 5.4, 5.5; *c* m^3 6.5, 7.0; *ml* 10.0, 10.8.

Diagnosis : Very much similar to *Rhinolophus pusillus blythi,* but slightly larger (forearm around 40.0 mm, on average) with relatively larger ears and noseleaf.

Distribution : India : Meghalaya : Jaintia Hills district (Hinton & Lindsay 1926); Delhi (Brosset 1962); Rajasthan (Prakash 1956); Uttar Pradesh; Madhya Pradesh; Maharashtra (Wroughton 1916); Karnataka (Wroughton 1913); Kerala (Blanford 1891); Tamil Nadu (Das 1986*b*); Andhra Pradesh (Das 1986*b*); Orissa (Das & Agrawal 1973); Bihar (Blyth 1863*a*, Wroughton 1915); West Bengal. Nepal (Mitchell 1980), possibly Bangladesh (Siddiqi 1961*a*).

Remarks : In recent years, there has been much discussion on the limits and different subspecies of *Rhinolophus lepidus*. Das (1986*b*) has summarised relevant details on these aspects.

21. ***Rhinolophus subbadius*** Blyth

1844. *Rhinolophus subbadius* Blyth, *J. Asiat. Soc. Beng.*, 13 : 486 (Nepal).

Common name : Nepal Horseshoe Bat (Eng.).

Material examined : West Garo Hills district : 1 ♀, Siju Cave, coll. S. W. Kemp & B.N. Chopra, 1921. 1 ♀, Garo Hills (Holotype of *Rhinolophus garoensis* Dobson, 1872).

Measurements : External 2 ♀ : Fa 34.0, 37.3; Tl(1) 16.0; E(1) 12.6; Tb 12.6, 13.5; F & Cl 6.5, 7.0. Cranial : 2 ♀ : *l* 14.0, 15.9; *cb*(1) 12.2; *ccl*(1) 13.2; *mtr* 5.3, 5.6; c^1 c^1 3.6(2); *iw*(1) 2.1; *cw*(1) 6.5; *zw*(1) 7.3; m^3 m^3 5.6(2); *c* m^3 5.9, 6.1.

Diagnosis : Smallest (forearm around 34.0 mm) *Rhinolophus;* noseleaf very similar to *Rhinolophus pusillus blythi,* but connecting process curved horn-like and anterior surface conspicuously concave.

Distribution : India : Meghalaya : West Garo Hills district (Kemp 1924), Garo Hills district (Dobson 1872); Uttar Pradesh. Nepal, Myanmar, Vietnam.

Remarks : Nepal Horseshoe Bat appears to be a montane species.

22. ***Rhinolophus luctus perniger*** Hodgson

1843. *Rhinolophus perniger* Hodgson, *J. Asiat. Soc. Beng.*, 12 : 414 (Nepal).

Common name : Great Eastern Horseshoe Bat (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : Largest (forearm up to 78.0 mm) horseshoe bat of Meghalaya; horseshoe broad; sella

trifoliate; lower lip with one mental groove; tip of tail included in interfemoral membrane; frontal sac present, smaller in females; fur dense and woolly, usually blackish.

Distribution : India : Meghalaya : Khasi Hills (Jerdon 1867, Dobson 1874), Jaintia Hills district (Hinton & Lindsay 1926); Uttar Pradesh; Madhya Pradesh (Sinha 1973); West Bengal (Blyth 1863*a*); Sikkim; Assam (Sinha 1973); Nagaland (Sinha 1973). Nepal, Myanmar, possibly Thailand (Lekagul & McNeely 1977).

Remarks : Great Eastern Horseshoe Bat, is essentially a montane form.

23. ***Rhinolophus pearsoni*** Horsfield

1851. *Rhinolophus pearsonii* Horsfield, *Cat. Mammal. Mus. Hon. East-India Co.* : 33 (Darjiling = Darjiling, Darjiling district, West Bengal, India)

Common name : Pearson's Horseshoe Bat (Eng.).

Material examined : West Khasi Hills district : 1 ♂ Cherra Punji, coll. R. Freil, 31. x. 1914. Jaintia Hills district : 3 ♂ 1 ♀, Khonshnong (*c* 914 m), coll. H. W. Wells, 22. vii. 1920.

Measurements : External : 4 ♂ : Fa 52.0 54.0(52.9); Tl(3); 23.0 24.0(23.7); E(3) 20.7 25.0(23.2); Tb 24.5 27.8(26.0); F & Cl(3) 10.1 12.2(11.1). 1 ♀ : Fa 52.0; Tl 24.0; E 24.0; Tb 25.7; F & Cl 10.3. *Cranial* : 4 ♂ : *l* 23.2 24.3(23.7); *ccl* 19.0 20.8(20.2); *cw* 9.0 9.7(9.3); *mtr* 9.1 9.8(9.5); c^1 c^1 5.6 - 6.3(5.7); *iw* 2.3 2.6(2.5); *zw* 11.1 12.2(11.6); m^3 m^3 8.2 9.0(8.7); ml(1) 15.2; *c* m^3 9.7 10.3(10.0). 1 ♀ : *l* 23.8; *ccl* 20.1; cw 9.5; *mtr* 9.4; c^1 c^1 5.6; *iw* 2.1; m^3 m^3 8.6; *zw* 11.3; *c* m^3 9.9.

Diagnosis : A medium-sized (forearm 50.5 to 55.0 mm) horseshoe bat, with horseshoe completely covering muzzle; sella not trifolitate; base of sella broader than vertical part; lower lip with single mental groove.

Distribution : India : Meghalaya : Garo Hills (Dobson 1876), West Khasi Hills district (Dobson 1876), East Khasi Hills district (Hinton & Lindsay 1926), Jaintia Hills district (Hinton & Lindsay 1926); Uttar Pradesh; West Bengal; Sikkim (Hill 1987). Nepal (Hinton & Fry 1923), (?)Bangladesh (Khan 1982), Bhutan (Saha 1980), Myanmar (Hill 1987), southern China (Corbet & Hill 1986) including Tibet (Dobson 1876, Cai & Zhang 1981), Vietnam, Thailand (Lekagul & McNeely 1977), Malaya (Honacki *et al.* 1982).

Remarks : Hill (1987) considers the validity of *chinensis* Andersen, 1905 as a subspecies of *Rhinolophus pearsoni* doubtful due to overlapping measurements of *pearsoni* and *chinensis*.

Subfamily HIPPOSIDERINAE

The noseleaf is more or less an oblong naked pad. Its anterior portion is not deeply notched in the middle (except *Coelops*). The nostrils are situated in the middle of this part and are separated by a longitudinal ridge. The median portion of the noseleaf consists of a prominent transverse bar behind the nostrils. The posterior portion of noseleaf is never triangular, its hinder margin is most usually rounded and curved forward. It is divided into cells by vertical septa. Some species have supplementary leaflets ventrolateral to the anterior portion of the noseleaf.

A glandular frontal sac present in some species, whose pore opens behind posterior portion of noseleaf; no distinct antitragus; sagittal crest low; cochlea only moderately large; all toes with two phalanges.

In Meghalaya, two genera of the subfamily Hipposiderinae, *viz.*, *Hipposideros* and *Coelops*, are found

Key to the genera, species and subspecies of the subfamly HIPPOSIDERINAE

1. Anterior noseleaf not divided 2

   Anterior noseleaf divided into distinct lappets ..... *Coelops frithi frithi*

2. Larger (forearm more than 82.0 mm) 3

   Smaller (forearm less than 65.0 mm)..... 4

3. Posterior noseleaf narrower than anterior noseleaf; frontal sac present .... *Hipposideros armiger armiger*

   Posterior noseleaf not narrower than anterior noseleaf; frontal sac absent..*Hipposideros lankadiva*

4. Medium-sized (forearm less than 45.0 mm)..... *Hipposideros larvatus leptophyllus*

   Small-sized (forearm less than 45.0 mm) 5

5. Forearm more than 38.5 mm ..... *Hipposideros pomona gentilis*

   Forearm less than 37.0 mm ..... *Hipposideros cineraceus*

Genus ***Hipposideros*** Gray, 1831

Five species and subspecies of the genus *Hipposideros* are known from Meghalaya, the key for which has been given above.

24. ***Hipposideros larvatus*** *leptophyllus* Horsfield

1874. *Phyllorhina leptophylla* Dobson, *J. Asiat. Soc. Beng.*, 43(Pt. 2) : 234 (Khasia Hills = Khasi Hills, Meghalaya, India).

Common name : Khasi Leaf-nosed Bat (Eng.)

Material examined : West Garo Hills district : 1 ♂ 1 ♀, Above Tura, coll. S. W. Kemp, vii. viii. 1917. East Khasi Hills district : 7♂ 3 ♀, Laitkynsew (*c* 610 m), coll. J. H. Bourne, H. W. Wells, 1872, 2. v. 1920. 1 ♂ Khasi Hills, coll. H. H. Godwin-Austen, 1870 (Holotype).

Measurement : External : 8 ♂ : Fa 61.2 63.3(62.0); Tl(5) 37.2 42.3(38.9); E(5) 20.3 23.9 (22.1); Tb 23.4 25.2(24.2); F & Cl 10.9 13.1(11.6). 4 ♀ : Fa 61.7 63.5(62.5); Tl(3) 41.5 45.6(43.0); E 22.9 25.3(24.0); Tb 23.0 26.0(25.0); F & Cl 10.0 12.5(11.7). Cranial : 8 ♂ : l(5) 23.6 24.9(24.5); *ccl* 20.6 21.5(20.9); *mtr* 8.6 9.6(9.1); c^1 c^1 5.2 5.5(5.4); *iw* 2.8 3.4(3.2); *cw* 9.6 10.2(9.8); *zw* 13.3 14.0(13.6); m^3 m^3 9.0 9.5(9.3); *c* m^3 9.7 10.2(9.9); *ml*(3) 15.6 16.0(15.9). 4 ♀ : l(3) 24.5 25.2 (24.9), *ccl* 20.0 20.5(20.2); *mtr* 9.3 9.5(9.4); c^1 c^1 5.3

5.8(5.5); *iw* 3.2(4); *cw* 9.4 10.1(9.7); *zw* 13.5 14.2(13.9); m^3 m^3 9.3 9.6(9.4); *c* m^3 9.7 10.0(9.9); *ml*(3) 16.0 16.1(16.0).

Diagnosis : Ears large, rather broad, triangular, posterior margins concave behind tip, small process at antitragal fold; anterior neseleaf with median emargination; narial lappets well developed; median portion of noseleaf slightly expanded; upper edge of posterior noseleaf more or less semicircular; frontal sac in both sexes, reduced in females.

Distribution : India : Meghalaya : West Garo Hills district, Ri-Bhoi district (Hinton & Lindsay 1926), East Khasi Hills district (Hinton & Lindsay 1926), Khasi Hills; Assam. Bangladesh (Blyth 1963a).

Remarks : Blyth (1863*a*) reported four specimens from Sylhet, northern Bangaladesh, as *H. larvatus* (Horsefield, 1823). A specimen from the same locality is in no way different from those listed above.

25. ***Hipposideros lankadiva*** Kelaart

1850. *Hipposideros lankadiva* Kelaart, *J. Ceylon Brch R. Asiat. Soc.*, 2 : 216 (Kornegalle Tunnel, Kandy, Ceylon = (Sri Lanka).

Common names : Sri Lanka Gigantic Leaf-nosed Bat or Kelaart's Leaf-nosed Bat (Eng.).

Material examined : South Garo Hills district : 4 ♂ 1 ♀, Rongmachok, coll. V. T Darlong, 28.ix.1986 14 ♂, 5 ♀, Siju Cave, coll. S. W. Kemp & B. N. Chopra, A. S. Rajagopal,. ii.1922, 6. 7. iii. 1965.

Measurements : External : 11 ♂ : Fa 85.5 92.7(88.6); Tl 40.0 56.5(50.1); E 23.6 28.5 (26.2); Tb 32.0 36.7(34.2); F & Cl 15.0 19.0(17.1). 4 ♀ : Fa 86.5 93.4(89.2); Tl 48.0 55.9 (51.6); E 24.2 28.0(25.6) Tb 31.4 35.9(33.3); F & Cl 16.0 18.5 (17.3). Cranial : 6 ♂ : *l* 31.2 33.5(32.2); *mtr* 13.6 14.5(14.0); c^1 c^1(2) 7.9, 8.0; *iw*(3) 3.3 3.6(3.4); *cw* 12.0 14.0 (13.3); *zw* 20.0(3); m^3 m^3 12.6 13.2(13.0); *c* m_3 16.0(3); *ml*(4) 24.0 25.5(24.7). 3♀ : *l* (1) 30.1; *mtr*(2) 13.2, 13.9; c^1 c^1(2) 7.2, 7.9; *iw*(1) 3.6; *cw*(1) 13.7; *zw*(1) 19.0; m^3 m^3(2) 12.3. 13.0; *c* m_3(1) 14.2; *ml*(2) 23.0, 23.2.

Diagnosis : Ears large, acutely pointed, posterior margins slightly concave behind tip; noseleaf with four supplementary leaflets, fourth much reduced, often absent; posterior portion of noseleaf high and broad, upper margin semicircular and supported by three septa.

Distribution : India : Meghalaya : South Garo Hills district (Kemp 1924); Karnataka; Andhra Pradesh (specimens in ZSI); Maharashtra (Sapkal & Bhandarkar 1984); Madhya Pradesh; Orissa (Das *et al.* 1993); West Bangal (Agarwal *et al.* 1992); Tripura (specimen in ZSI). Sri Lanka, northern Myanmar (Andersen 1907).

Remarks : Ellerman & Morrison-Scott (1951) have recognised three subspecies of *Hipposideros lankadiva* from the Indian mainland, *viz. H. l. indus, H. l. mixtus* and *H. l. unitus*, and *H. schistaceus* as a separate species. Brosset (1962) has studied *H. lankadiva* from several localities of western and central India and has found that colour variation is a rule rther than an exception in this

species. He (Brosset 1962), therefore, has not recongnised any of the above-named subspecies (as also *schistaceus*, which he erroneously mentioned as a subspecies). Hill (1963), in his review of the genus *Hipposideros*, has maintained all these subspecies (and *schistaceus* as a separate species), but has also stated that *indus* and *mixtus* are likely to prove synonymous. A tentative examination of the good collection of *Hispoosideros lankadiva* present in the Zoological Survey of India, as also those in the Bombay Natural History Society and the American Museum of Natural History, U.S.A. (brought on loan for study) has revealed that though the peninsular Indian population is rather smaller as compared to that of Sri Lanka, at least some of the specimens from northeastern India are as large as those from Sri Lanka. A thorough analysis of the data is, therefore, necessary to resolve the problem of subspecies in *H. lankadiva vis-a-vis* the taxonomic status of *Hipposideros schistaceus*.

26. ***Hipposideros pomona gentilis*** Andersen

1918. *Hipposideros gentilis* Andersen, *Ann. Mag. nat. Hist.*, (9) 2 : 380, 381 (Thayetmyo, Burma = Thayetmyo, eastcentral Myanmar).

Common name : Indian Bicoloured Leaf-nosed Bat (Eng.).

Material examined : East Khasi Hills district : 1 ♂, 2 ♀ Cherra Punji (*c* 1, 676 m), coll. F. Stoliczka, H. W. Wells, 1875, 17. iv. 1920; 1 ♀, Laitkynsew, coll. H. W. Wells, 30. iv. 1920.

Measurements : External : 1 ♂ : Fa 40.0; Tl 28.0; E 22.0; Tb 17.5; F & Cl 8.7. 3 ♀ : Fa 40.0 43.0 (41.4); Tl 28.0 35.0(32.3) E 18.4 24.0(21.5); Tb 18.1 20.0(19.4); F & Cl 7.7 8.2(8.0). Cranial : 1 ♂ : *l* 18.2; *ccl* 15.7; *mtr* 6.3; c^1 c^1 3.2; *iw* 2.6; *cw* 8.2; *zw* 8.5; m^3 m^3 6.1; *c* m_3 6.9; *ml* 10.6. 3 ♀ : *l* 17.9 18.2(18.0); *ccl* 15.1 15.9(15.6); *mtr* 6.0 6.3(6.2); c^1 c^1 3.2 3.3(3.3) *iw* 2.6 2.9(2.7); *cw* 7.8 8.3(8.1); *zw*(2) 8.7, 9.0; m^3 m^3 5.8 6.1(5.9); *c* m_3(2) 6.4, 6.8; *ml*(1) 10.7.

Diagnosis : A medium-sized (forearn 40.0 mm or more) leafnosed bat with large, rounded ears; anterior margin of ear strongly convex, posterior margin lacking concavity just behind tip; noseleaf lacks lateral supplementary leaflets; internarial septum more or less triangular; posterior noseleaf supported by three septa; dorsal pelage brownish, ventral parts paler; posterior projecting portion of vomer thickened; anterior lower premolar less reduced (length about half the length of, height two third that of last lower premolar).

Distribution : India : Meghalaya : East Khasi Hills district (Hinton & Lindsay 1926), Garo Hills (Hinton & Lindsay 1926); Uttar Pradesh (Andersen 1918); West Bengal (Agarwal *et al.* 1992), Sikkim (Hill *et al.* 1986); Assam (Hinton & Lindsay 1926); Arunachal Pradash (Hinton & Lindsay 1926). Nepal, Bangladesh, Myanmar, southern Thailand (Lekagul & McNeely 1977, Hill *et al.* 1986) and northern Malay Peninsula (Hill *et al.* 1986).

Remarks : Hill (1963), in his review of the genus *Hipposideros*, considered *Hipposideros bicolor* (Temminck, 1834) of Java, *Hipposideros pomona* Andersen, 1918 (typoe-locality : Haleri, N. Coorg = Haleri, Kodagu district, Karnataka, India) and *Hipposideros gentilis* as conspecific, with *pomona* and *gentilis* as subspecies. Hill *et al.* (1986) have, however, shown that *H. bicolor* and *H. pomona* are distinct species, the former does not occur in India and that the latter is represented in India by two

subspecies, the nominate subspecies occurring in the southern areas and *H. p. gentilis* in northeastern parts. Incidentally, Ellerman & Morrison-Scott (1951) also considered *gentilis* as a subspecies of *pomona*. Specimens (present in ZSI) reported from Nepal by Scully) 1888 as *Phyllorhina fulva* and referred to *Hispposideros fulvus* by Hinton & Fry (1923), are actually examples of *H. pomona gentilis*. A female specimen (examined) collected by major Godwin-Austen from 'Khasia Hills' (= Cherra Punji, East Khasi Hills district, Meghalaya), was reported by Dobson (1874), as *Ph. fulva* and subsequently listed by the same author (Dobson 1876), as *Phyllorhina fulva*, is in fact, an example of *H. pomona gentilis*. Similarly, specimens from Assam, Bangladesh and Myanmar listed by Dobson (1876) as *Phyllorhina fulva* are all (present in ZSI) examples of *Hipposideros pomona gentilis*. On the other hand, while referring specimens from Vietnam to *H. gentilis*, Osgood (1932) doubted the validity of *sinensis* as a subspecies. It is quite possible, even probable that *sinensis* may ultimately have to be considered as a synonym of *H. p. gentilis*, but the same need to be formally established by studying sufficient material. Till then, Vietnam should better be excluded from the distributional range of *H. pomona gentilis*.

27. ***Hipposideros cineraceus*** Blyth

1853. *Hipposideros cineraceus* Blyth, *J. Asiat. Soc. Beng.*, 22 : 410 (Bhera, near Pind Dadan Khan, Punjab Salt Range = Bhera, *c* 32 km SW of Pind Dadan Khan, Salt Range, The Punjab, Pakistan).

Common names : Least Leaf-nosed Bat or Blyth's Leaf-nosed Bat (Eng.).

Material examined : East Khasi Hills district : 1 ♀, Cherra Punji, coll. H. H. Godwin-Austen, 1870.

Measurements : External : 1 ♀ : Fa -; Tl 29.7; E 14.6; Tb 15.7; F & Cl 6.1. Cranial : 1 ♀ : *l* 15.9; *ccl* 14.0; *mtr* 5.2; c^1 c^1 2.7; *iw* 2.6; *cw* 6.8; *zw*-; m^3 m^3 5.0; *ml* 8.9.

Diagonsis : Smallest *Hipposideros* of Meghalaya ; externally similar to *Hipposideros pomona gentilis*, but smaller (forearm around 35.0 mm) ; dorsal colour dusky grey, basal three fourth of hairs greyish-white which show through, especially on head and neck; ventral parts greyish white; internarial septum more or less parallel-sided and inflated; zygomatic arch narrow and delicate; anterior upper premolar small, compressed between canine and posterior upper premolar, not extruded from tooth-row (canine and posterior premolar do not touch at any point.)

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district (Hinton & Lindsay 1926); Haryana (Hinton & Thomas 1926); Uttar Pradesh; West Bengal (Siddiqui 1961*a*;) Assam (Hinton & Lindsay 1926); Arunachal Pradesh (Hinton & Lindsay 1926). Pakistan, Nepal (Hinton & Fry 1923), Myanmar, Vietnam, Laos (Phillips 1967), Thailand, Malaya Peninsula, Rhio Archipelago, Anamba Islands, Borneo, ? Philippine Islands (Hill & Francis 1984).

Remarks : Ellerman & Morrison-Scott (1966) have recognised two subspecies of *Hipposideros cineraceus, viz.*, the nominate one and *H. c. micropus* (Peters, 1872). Hill & Francis (1984) have, however, synonymised *micropus* with the nominate subspecies. These authors (Hill & Francis 1984) have also tentatively considered *Hipposideros wrighti* Taylor, 1834 of Philippine Islands as a

synonym of *H. cineraceus.*

28. ***Hipposideros armiger armiger*** (Hodgson)

1835. *Rhinolophus armiger* Hodgson, *J. Asiat. Soc. Beng.*, 4 : 699 (Nepal).

Common name : Great Himalayan Leaf-nosed Bat (Eng.).

Material examined : East Khasi Hills district : 3 ♀ : Shillong, coll. H. H. Godwin-Austen, 1875. Jaintia Hills district : 4 ♂ 5 ♀, Khonshnong, [*c* 914 m], coll. H. W. Wells, 22, 25, 30, 31. vii. 1920, 3. viii. 1920, 1 ♂, 2 ♀ : Shangpung (*c* 1219 m), coll. H. W. Wells, 8, 11, 12. viii. 1920; Garo Hills district : 1 ♂ : Dura Bandar (*c* 488 m), coll. H. W. Wells, 13. iii. 1920.

Measurements : External : 6 ♀ : Fa 86.2 91.0(89.0); Tl 50.0 60.0(55.2); E 30.0 31.0(30.1); Tb 33.0 38.6(35.7); F & Cl 13.8 20.6(16.9). 9 ♀ : Fa 80.9 91.0(86.6); Tl 48.0 59.0(53.3); E 28.0 30.2(29.3); Tb 33.9 39.8(36.0); F & Cl 14.8 18.2(16.5). Cranial : 2 ♂ : *l*(1) 31.1; *ccl*(1) 25.8; *mtr* 12.0(2); c^1 c^1(2) 6.3, 6.8; *iw*(2) 4.1, 4.4; *cw*(1) 11.2; *zw*(1) 17.0. 3 ♀ : *l* 29.0 - 30.1(29.5); *ccl*(2) 24.4, 25.1; *mtr* 11.4 11.6(11.5); c^1 c^1 6.2 6.8*(6.6);iw* 3.8 4.6(4.2); *cw* 11.1(2); *zw*(2) 16.9, 17.0; *ml*(2) 14.8, 20.6.

Diagnosis : Larget (forearm may reach 96.0 mm or even more) leaf-nosed bat of Meghalaya; ears large, broad and acutely pointed, posterior margins concave behind tip, slight thickening at antitragal region; noseleaf with four supplementary leaflets, fourth rudimentary; median portion of noseleaf slightly inflated with a prominent eminence at middle; upper edge of posterior noseleaf flattened, thickened and trilobate, and supported by one prominent median and two less evident lateral septa; frontal sac prominent in males, small in females.

Distribution : India : Meghalaya : East Khasi Hills district (Dobson 1874), Jaintia Hills district (Hinton & Lindsay 1926), Garo Hills; Uttar Pradesh; West Bengal (Blyth 1863*a*); Sikkim (Blanford 1891); Assam (Hinton & Lindsay 1926). Nepal, Myanmar, southeastern China (Sichuan, Yunan, Fujian, etc.), Hong Kong, (Phillips & Wilson 1968), Vietnam, Thailand (Lekagul & McNeely 1977), Malaya Peninsula, and nearby islands (Anderson 1881).

Remarks : Ellerman & Morrison-Scott (1951) recognised a number of subspecies of *Hipposideros armiger*, of which Hill (1963) has synonymised *swinhoii* Peters, 1871 (type-locality : Amoy, Fujian, China) and *debilis* Andersen, 1906 (type-locality : Province Wellesley, Federation of Malaya) with the nominate subspecies. The distribution of *H. a. armiger*, as given above, is based on Hill's (*loc. cit.*) concept.

Genus ***Coelops*** Blyth, 1848

One species and subspecies of the genus *Coelops* occurs in Meghalaya.

29. ***Coelops frithi frithi*** Blyth

1848. *Coelops frithii, J. Asiat. Soc. Beng.*, 17 : 251 (Sundarbans, Bengal, India = Sundarban, South 24-Parganas district, West Bengal, India*).

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* The type-specimen possibly or even probably came from Bangladesh part of Sundarban, because Mr. R. W. C. Frith, the collector, was posted at Mymensingh, part of erstwhile eastern Bengal, now in Bangladesh.

Common name : Tailless leaf-nosed Bat (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : A small (forearm around 35.0 mm), rather unusual looking leaf-nosed bat with no visible external tail, ears funnel-shaped, whole surface hairy, antitragal lobe very broad; supplementary lappets of anterior noseleaf come forward beyond end of muzzle; face and sides of noseleaf covered with long hairs; thumb included in wing almost to base of claw; wing from tarsus close to ankle; tail about 2.0 mm, concealed under hairs; colour of fur shining brown above and below, bases of hairs much paler.

Distribution : India : Meghalaya : East Khasi Hills district (Hinton & Lindsay 1926). Probably Bangladesh (Khan 1982), Myanmar (Hill 1962), Thailand (Lekagul & McNeely 1977).

Remarks : The Tailless Leaf-nosed Bat is one of the rarest bats of Meghalaya.

Family MOLOSSIDAE

Muzzle broad, obtuse and obliquely truncate; nostrils open on a specialised pad; lips large, upper lip furrowed by vertical wrinkles; ears large, broad with distinct antitragus and united at bases across forehead; tragus small; wing narrow; wing membranes thick and leathery; tail projecting far beyond free edge of interfemoral membrane; foot short and broad; toes unequal, bear long stiff bristles; claws dissimilar.

The family Molossidae is represented in Meghalaya by the genus *Tadarida* only.

Genus ***Tadarida*** Rafinesque, 1814

Only one species and subspecies of the genus *Tadarida* occurs in Meghalaya.

30. ***Tadarida plicata plicata*** (Buchannan)

1800. *Vespertilio plicatus* Buchannan, *Trans. Linn. Soc. Lond.*, 5 : 261, Pl. 13 (Bengal = West Bengal, India).

Common name : Wrinkle-lipped Bat (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : Muzzle broad and thick; upper lip overhanging the lower, marked by pronounced vertical wrinkles; ears large, thick and rounded, joined in front of orbits by band of skin; antitragus well defined; lower part of legs free from wing; wing and ankle connected by raphae.

Distribution : India : Meghalaya : East Khasi Hills district (Blyth 1852); Punjab (Blyth 1863*a*); Rajasthan; Uttar Pradesh (Dobson 1876); Madhya Pradesh (Kashyap 1982); Tamil Nadu (Jerdon 1867); West Bengal (Blyth 1863*a*). Myanmar, southern China (Honacki *et al.* 1982) including Hainan, Hong Kong (Romer 1960), Tibet (Hill 1961), Vietnam (Honacki *et al.* 1982), Cambodia (Yoshiyuki 1966), Thailand (Hill & Thonglongya 1972), Malaya Peninsula, Singapore (Dobson 1878), Sumatra, Borneo.

Remarks : The Wrinkle-lipped Bat is a rare bat in Meghalaya. So far, only one specimen has been reported from this state.

Family VESPERTILIONIDAE

Noseleaf absent; inner margin of ear arises from side of head (not forehead); tragus well developed; eyes minute; tail long (about as long as forearm) and included in interfemoral membrane from base to tip or to penultimate joint; interfemoral membrane wide; premaxillae separate, without palatal branches; upper incisors usually small, separated medially; no postorbital process; palate widely emarginate anteriorly, abruptly narrowed behind last molars.

Key to the subfamilies of the family VESPERTILIONIDAE

1. Nostrils laterally elongated and tubular ..... MURININAE

   Nostrils not elongated 2

2. Ears funnel-shaped ..... KERIVOULINAE

   Ears not funnel-shaped 3

3. Second phalanx of third finger much elongated, nearly three times as long as first ..... MINIOPTERINAE

   Second phalanx of third finger not elongated ..... VESPERTILIONINAE

Subfamily VESPERTILIONINAE

Key to the genera of the subfamily VESPERTILIONINAE

1. Cheek-teeth six on each side of upper and lower jaw ..... ***Myotis***

   Cheek-teeth less than six on each side of upper and lower jaw 2

2. Upper premolars 2 2 3

   Upper premolars 1 1 6

3. Lower premolars 3 3 ..... ***Plecotus***

   Lower premolars 2 2 4

4. Ears joined ..... ***Barbastella***

   Ears separate 5

5. Forearm less than 45.0 mm ..... ***Pipistrellus***

   Forearm more than 70.0 mm ..... *Ia*

6. Upper incisors 2 2 7

   Upper incisors 1 1 8

7. Skull noticeably flattened; soles of feet expanded into fleshy pads ..... ***Tylonycteris***

   Skull not noticeably flattened; soles of feet normal ..... ***Eptesicus***

8. First and second upper molars with 'W' pattern distorted or nearly absent ..... ***Scotophilus***

   First and second upper molars with 'W' pattern not distorted ..... ***Scotomanes***

Genus *Myotis* Kaup, 1829

Three species and subspecies of the genus *Myotis* occur in Meghalaya.

Key to the species and subspecies of the genus *Myotis*

1. Length of foot and claw less than half the length of tibia 2

   Length of foot and claw equal to, or more than half the length of tibia ..... *Myotis horsfieldii*

2. Forearm more than 50.0 mm..... *Myotis formosus formosus*

   Forearm less than 40.0 mm ..... *Myotis siligorensis siligorensis*

31. *Myotis siligorensis siligorensis* (Horsfield)

1855. *Vespertilio siligorensis* Horsfield, *Ann. Mag. nat. Hist.*, 16 : 102 (Siligori = Shiliguri, Darjiling district, West Bengal, India).

Common names : Tarai Bat, Shiliguri Whiskered Bat (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : A small-sized (forearm around 33.0 mm) *Myotis*; upperparts dark brown; paler, tinged with cinnamon or buff; ears long, antitragal lobe distinct; tragus long (about half the length of ear), narrow and pointed; wing from base of toes; tip of tail free; lower canine about equal in height to posterior lower premolar.

Distrtibution : India : Meghalaya : Jaintia Hills district (Hinton & Lindsay 1926); West Bengal. Nepal (Hinton & Fry 1923).

Remarks : The Shiliguri Whiskered Bat is very rare in Meghalaya. Only a couple of specimens of this bat has so far been reported from this state.

32. *Myotis formosus formosus* (Hodgson)

1835. *Vespertilio formosa* Hodgson, *J. Asiat. Soc. Beng.*, 4 : 700 (Nepal).

Common name : Hodgson's Bat (Eng.).

Material examined : East Khasi Hills district : 1 ♀, Cherra Punji, coll. H. H. Godwin-Austen, 1871.

Measurements : Nil.

Diagnosis : A large (forearm may reach up to 53.0 mm) *Myotis*; fur thick and woolly; dorsal colour fawn to golden brown, often tinted with rusty red; ventral colour slightly paler; wing-membrane variegated with orange and blackish brown; wing from base of toes.

Distribution : India : Methalaya : East Khasi Hills district (Dobson 1876); Jammu & Kashmir (specimens in ZSI); Himachal Pradesh (Sinha 1986); Punjab; Uttar Pradesh; Maharashtra (D'Abreu 1925); Bihar; West Bengal (Jerdon 1867); Sikkim (Jerdon 1867); Assam (Blanford 1891, Sinha 1986). Eastern Afghanistan (Meyer-Oehme 1965), Nepal, possibly Bangladesh (Khan 1982).

Remarks : Hodgson's Bat is a rare bat in Meghalaya. It has only once been collected in the nineteenth century from this state.

33. ***Myotis horsfieldii*** (Temminck)

1840. *Vespertilio horsfieldii* Temminck, *Monogr. Mammal.*, 2 : 226 (Mount Gede, Java).

Material examined : Jaintia Hills district : 1 young ♀ Khonshnong, coll. H. W. Wells, 29. vii.1920.

Measurements : Nil.

Diagnosis : A medium-sized (forearm around 37.0 mm) *Myotis* with long feet; upperparts greyish brown, underparts greyer; wing-membranes dark grey; wing from midway between ankle and outer toe; second premolars not much reduced and not displaced inward.

Distribution : India : Meghalaya : Jaintia Hills district. Thailand, Malaya, Java, Bali, Borneo, Sulawesi.

Remarks : Hinton & Lindsay (1926) reported the above-mentioned specimen as *Leuconoe* sp. The specimen is not only young, but its skull is also badly damaged. Even then dental characters and wing-atrtachment peculier to *M. horsfieldii* is clearly discernible in the specimen. This specimen constitutes the basis for the first authentic record of *M. horsfieldii* proper for India, from Meghalaya. The specimen is not suitable for subspecific determination.

Genus ***Eptesicus*** Rafinesque, 1820

One species of the genus *Eptesicus* occurs in Meghalaya.

34. ***Eptesicus pachyotis*** (Dobson)

1871 *Vesperugo (Vesperus) pachyotis* Dobson, *Proc. Asiat. Soc. Beng.* : 211 (Khasi Hills, Meghalaya, India).

Common name : Thick-eared Bat (Eng.).

Material examined : Khasi Hills : 1 ♂ 1 ♀, Khasi Hills, coll. J. H. Bourne, 1872 (Syntypes of *Vesperugo pachyotis*).

Measurements : External : 1 ♂ : Fa 40.8; Tl 41.3; E 13.0; Tr 4.7; Tb 16.9; F & Cl 8.6. 1 ♀ : Fa 41.2; Tl 39.6; E 14.0; Tr 3.6; Tb 17.1; F & Cl 8.6.

Diagnosis : A medium-sized (forearm around 41.0 mm) vespertilionine bat; dark brown above, lighter brown below; ears triangular, tips rounded, outer margins straight, lower halves very thick and fleshy; wings from base of toes; inner incisors bifid, larger and longer than outer ones.

Distribution : India : Meghalaya : Khasi Hills. Possibly Bangladesh (Khan 1982), Myanmar (Honacki *et al.* 1982), Tibet (Feng *et al.* 1980) Thailand (Lekagul & McNeely 1977).

Remarks : The Thick-eared Bat is another rare bat of Meghalaya. No other specimen beyond the type-series has yet been collected, neither from Meghalaya, nor from any other part of India.

Genus ***Pipistrellus*** Kaup, 1829

Four species and subspecies of the genus *Pipistrellus* occur in Maghalaya.

Key to the species and subspecies of the genus ***Pipistrellus***

1. Larger (forearm 40.0 mm or more) 2

   Smaller (forearm 33.0 mm or less) 3

2. Anterior upper premolar minute and inwardly displaced from tooth-row, posterior uper premolar and canine touch each other ..... *Pipistrellus circumdatus*

   Anterior upper premolar small and in tooth-row, posterior upper premolar and canine do not touch each other..... *Pipistrellus austenianus*

3. Forearm less than 29.0 mm ..... *Pipistrellus mimus*

   Forearm more than 29.0 mm ..... *Pipistrellus coromandra coromandra*

35. ***Pipistrellus coromandra coromandra*** (Gray)

1838. *Scotophilus coromandra* Gray. *Mag. Zool. Bot.*, 2 : 498 (Pondicherry, Coromandel coast, India).

Common name : Indian Pipistrelle (Eng.).

Material examined : Jaintia Hills district : 1 ♂ 1 ♀, Khonshnong, coll. H. W. Wells, 26, 29. vii. 1920; 1 ♂: Sonapur, coll. Zoramthanga, 28. iii. 1981.

Measurements : External : 2 ♂ : Fa 29.8, 30.7; Tl 25.0, 35.0; E 10.8, 11.O; Tb 11.3, 12.7; F & Cl 5.6, 6.7. 1♀ : Fa 32.9; Tl 30.0; E 15.0; Tb 12.8; F & Cl 6.5. Cranial : 1 ♂ : *l* 12.0; *mtr* 4.4; *cw* 6.5; *zw* 8.0; m^3 m^3 5.5; *c* m^3 5.0; *ml* 9.0.

Diagnosis : A small-sized pipistrelle (forearm 31.0 mm, on average); dorsal fur blackish brown, tips of hairs slightly rufescent; ventral fur slightly paler brown; tragus forward curving and bluntly rounded; calcarial lobe small.

Distribution : India : Meghalaya : Jaintia Hills district (Hinton & Lindsay 1926); widely distributed in peninsular India, north to Jammu (Sharma & Sharma 1976) & Kashmir (Chakraborty 1983), east to northeastern states including Tripura (Agrawal & Bhattacharyya 1977). The present species has also been reported from Car Nicobar Island (Bhattacharyya 1977). Afghanistan (Meyer-Oehme 1965), Pakistan (Walton 1974), Nepal (Hinton & Fry 1923), Sri Lanka, Bangladesh (Khan 1982).

Remarks : The Indian Pipistrelle, though quite common in most other parts of India, is rather uncommon in Meghalaya.

36. ***Pipistrellus mimus*** Wroughton

1899. *Pipistrellus mimus* Wroughton, *J. Bombay nat. Hist. Soc.*, 12 : 722 (Maheshkatri, Dangs, Surat district = Maheskatri, The Dangs district, Gujarat, India).

Common name : Indian Pygmy Pipistrelle (Eng.).

Material examined : West Garo Hills district : 1 ♂, 1 ♀, Phulbari, coll. A. S. Rajagopal, 20. xi. 1965.

Measurements : External : 1 ♀ : Fa 27.0; Tb 11.5; F & Cl 6.1. Cranial : 1 ♀ : *l* 1.3; *mtr* 3.7; *cw* 6.2; *zw* 7.1; m^3 m^3 4.9; *c* m^3 4.0; *ml* 7.4.

Diagnosis : Smallest (forearm around 28.0 mm) pipistrelle of Meghalaya; fur dense and short; dorsal coloration bistre brown, base of hairs almost black; ventral parts lighter; face, ears and wing-membranes almost black; ears small and scarcely triangular; tragus short and curved forward; post-calcarial lobe present; wings from base of toes.

Distribution : India : Meghalaya : West Garo Hills district, East Khasi Hills district (Hinton & Lindsay 1926); widely distributed throughout the mainland of Indian Union. Afghanistan (Meyer-Oehme 1965), Pakistan, Nepal (Hinton & Fry 1923), Sri Lanka, possibly Bangladesh (Khan 1982), Myanmar, Vietnam, Thailand (Lekagul & McNeely 1977).

Remarks : Following recent revisions (Sinha 1980, Hill & Harrison 1987), *Pipistrellus mimus* has been considered here as monotypic.

37. ***Pipistrellus austenianus*** Dobson

1871. *Pipistrellus austenianus* Dobson, *Proc. Asiat. Soc. Beng.* : 213 (Cherra Punji, East Khasi Hills district, Meghalaya, India).

Common name : Godwin-Austen's Bat (Eng.).

Material examined : East khasi Hiils district : 1 ♂, Cherra Punji, coll. H. H. Godwin-Austen, 1871 (Holotype).

Measurement : External : 1 ♂: Fa 40.0; Tl 34.0; E 12.2; Tr 6.0; Tb 15.0; F & Cl 7.9. Cranial : 1 ♂ : *l* 5.5; *mtr* 5.8; c^1 c^1 4.8; *iw* 3.8; *cw* 7.9; *zw* 9.2; *c* -m^3 6.8; *ml* 11.4.

Diagnosis : A medium-sized (forearm around 40.0 mm) pipistrelle; dark sooty brown in colour, hairs on back and lower parts tipped light grey; post-calcarial lobe well developed, rounded; anterior upper premolar, though small, visible from outer side; posterior upper premolar and canine do not touch each other.

Distribution : India : Meghalaya : East Khasi Hills district. Myanmar.

Remarks : Opinions differ as to the exact taxonomic status of the present taxon. Pending further studies, *P. austenianus* has been treated here as a distinct species closely related to *P. savii* (Bonaparte, 1837).

38. ***Pipistrellus circumdatus*** (Temminck)

1840. *Vespertilio circumdatus* Temminck, *Monogr. Mammal.*, 2 : 214 (Tapos, Java).

Common name : Large Black Pipistrelle (Eng.).

Material examined : East Khasi Hills district : 1 ♀ (skull badly damaged), Shillong, coll. R. Mathew, 26.v.1988.

Measurements : External : 1 ♀ : Fa 41.3; Tl 33.5; E 13.0; Tr 5.9; Tb 15.0; F & Cl 5.9.

Diagnosis : Similar to *Pipistrellus austenianus*, but upper parts deep black, hairs tipped bright ferrugineous, underparts dull black, hairs tipped greyish; no post-calcarial lobe; anterior upper premolar minute, displaced inwardly from tooth-row; posterior upper premolar and canine touch each other.

Distribution : India : Meghalaya : East Khasi Hills district; India (Dobson 1878). Myanmar (Hill 1974), southwestern China (Wang 1982), Malaya (Hill 1974), Java.

Remarks : The only other specimen of the Large Black Pipistrelle from (some undiagnosed locality of) India is supposed to be present in the British Museum (Natural History), London. The present specimen, therefore, forms the basis for its occurrence in Meghalaya in particular and India in general.

Genus ***Ia*** Thomas, 1902

The genus ***Ia*** is monospecific.

39. ***Ia io*** Thomas

1902. *Ia io* Thomas, *Ann. Mag. nat. Hist.*, 10 : 164 (Chungyang, souther Hupeh, China).

Common name : Great Pipistrelle (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : Largest verpertilionine (forearm may be more than 76.0 mm) bat of Meghalaya and India; upperparts sooty brown, underparts dark greyish brown; face thinly haired; ears short, inside of tips densely haired; tragus short, tip bluntly rounded; outer upper incisor not extending beyond cingulum of inner; anterior upper premolar minute and displaced inward; posterior upper premolar and canine touch each other.

Distribution : India : Meghalaya : East Khasi Hills district (Topal 1970). Southern China, Vietnam (Topal 1970), Laos (Topal 1970), Thailand (Lekagul & McNeely 1977).

Remarks : Mr. G. Topal of the Hungarian Natural History Museum collected a single specimen of the Great Pipistrelle from the Mawsami Cave, near Cherra Punji, in 1967. Till date, this is the only specimen of the present species known from Meghalaya and India.

Genus ***Tylonycteris*** Peters, 1872

The genus *Tylonycteris* is represented in Meghalaya by one species and subspecies.

40. ***Tylonycteris pachypus fulvida*** (Blyth)

1859. *Scotophilus fulvidus* Blyth, *J. Asiat. Soc. Beng.*, 28 : 293 (Schwegyin, Sittang river, southeastern Myanmar).

Common name : Club-footed Bat. (Eng.).

Material examined : West Garo Hills district : 1 ♀, Kherapara (*c* 305 m), coll. R. K. Ghose, 21. vii. 1988.

Measurements : External : 1 ♀ : Fa 23.5; Tl 26.0; E 6.0; Tb 10.4; F & Cl 4.7. Cranical : 1 ♀ : *l* 10.4; *mtr* 3.3; c^1 c^1 3.6; *iw* 3.3; *cw* 6.0; *zw* 7.4; m^3 m^3 4.8; *c* m^3 3.6; *ml* 7.3.

Diagnosis : One of the two smallest bats of India and Meghalaya (the other is *Pipistrellus mimus*); reddish brown above and below; ear shorter, tip rounded; tragus short, tip rounded; fleshy pads at junction of thumb and second finger, and on soles; skull dorsoventrally flattened, braincase and rostrum at same level.

Distribution : India : Meghalaya : West Garo Hills district; West Bengal (Dobson 1876); Sikkim; Tripura (specimen in ZSI); Manipur; Andaman Islands (Dobson 1876). Bangladesh (Ahmed & Husain 1982), Myanmar, southern China, Vietnam, Laos, Thailand (Lekagul & McNeely 1977).

Remarks : Thomas (1915) described *Tylonycteris aurex* on the basis of its coloration, but also indicated that it might be conspecific with the Myanmarese form as well. Ellerman & Morrison-Scott (1951) have considered *aurex* as a subspecies of *T. pachypus*. Under the circumstances, further specimens from the distributional range of *T. aurex* need to be compared with specimens from the distributional range of *T. P. fulvida* to assess the taxonomic status of *T. aurex*.

Genus ***Barbastella*** Gray, 1821

A single species and subspecies of the genus *Barbastella* is found in Meghalaya.

41. ***Barbastella leucomelas darjelingensis*** (Hodgson)

1855. *Plecotus darjelingensis* Hodgson, *In* Horsfield, *Ann. Mag. nat. Hist.*, (2) 16 : 103 (Darjiling = Darjiling, Darjiling district, West Bengal, India).

Common name : Eastern Barbastelle (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : A medium-sized (forearm around 40.0 mm) bat; ears large, joined across forehead, squarish and forward-slanting, posterior margin lacks projections or notches; tragus half the length of ear and triangular; two dark lines on interfemoral membrane from heel to base of pelvis; dorsal fur long, silky with blackish grey base and pale golden brown tips; underparts paler greyish brown.

Distribution : India : Meghalaya : Khasi Hills (Dobson 1874), Jaintia Hills district (Hinton & Lindsay 1926); Jammu & Kashmir (Sharma & Sharma 1976, Scully 1881); Himachal Pradesh (Dobson 1876); Rajasthan; Uttar Pradesh (Blyth 1863*a*); West Bengal; Sikkim. Southern Russia, Afghanistan (Meyer-Oehme 1965), Pakistan (Roberts 1977), Nepal, western China, possibly erstwhile Indo-China, Japan.

Remarks : The Eastern Barbastelle has only twice been collected from Meghalaya. As such, it appears to be a rare bat of this state.

Genus *Scotomanes* Dobson, 1875

The genus *Scotomanes* is represented in Meghalaya by a single species and subspecies.

42. *Scotomanes ornatus ornatus* (Blyth)

1851. *Nycticejus ornatus* Blyth *J. Asiat. Soc. Beng.*, 20 : 517 (Cherra Punji = Cherra Punji, East Khasi Hills district, Meghalaya, India).

Common name : Harlequin Bat (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : A large (forearm around 55.0 mm) vespertilionine bat; orange-brown above, with some white spots and streaks; hairs dark brown at base, then isabelline, tips brownish yellow; a broad white V-shaped band extends from shoulders to abdomen, a white collar commencing beneath each ear, rest of lower parts brown; ears moderate, subtriangular, tips rounded; tragus bluntly pointed, a pointed projecting lobule at base; tip of tail free.

Distribution : India : Meghalaya : East Garo Hills district (Hinton & Lindsay 1926), East Khasi Hills district, Jaintia Hills district (Thomas 1921); West Bengal (Blyth 1863*a*), Sikkim, Manipur (Anderson 1881), Arunachal Pradesh (Robinson 1913). Possibly Bangladesh (Khan 1982), northern Myanmar (Hill 1962).

Remarks : Ellerman & Morrison-Scott (1951) have recognised two subspecies in the non-Chinese range of *Scotomanes ornatus, viz., S. o. imbrensis* Thomas, 1921 apparently for the Jaintia Hills population and the nominate subspecies for other areas, including the Khasi Hills. Thomas (1921), while reviewing *Scotomanes ornatus,* erroneously took Darjiling as the type-locality of *S. o. ornatus,* while in reality, it is Cherra Punji, Khasi Hills. Thomas (*loc. cit.*) also stated that *imbrensis* (form Jaintia Hills) was to be found in 'Assam Hills' and also referred specimens from the Khasi Hills and the Garo Hills to it. Thus, Thomas (1921) himself could not find any difference between the Khasi Hills and Jaintia Hills populations. It, therefore, automatically follows that *imbrensis* does not warrant recognition. Hence, *Scotomanes ornatus imbrensis* is hereby synonymised with the nominate subspecies.

Sinha & Chakraborty (1971) have studied the skull of the holotype of *Nycticejus emarginatus* Dobson, 1871 and have transferred that species to the genus *Scotomanes* on account of its similarities with that genus, but maintained the same as a separate species for its alleged differences (smaller

forearm and tooth-row, and the absence of white spots) from *Scotomanes ornatus*. The small differences between the lengths of forearm, upper tooth-row and lower tooth-row of the holotype of *N. emarginatus* (55.2, 7.2 and 8.0, respectively) and those of three examples of *Scotomanes ornatus* (58.0, 58.5, 64.0; 8.0, 8.0, 8.2 and 8.6, 9.0, 9.0, respectively) may appear to be of some significance when the sample-size is small (as is here), but these may not be maintained at all when large series is measured, especially so in a species where there is 'wide range of size variation', as noted by Hill (1962) who provided range of forearm measurements as 53.0 60.0 for the Myanmarese population. Further, Blanford (1891) has stated, 'in females [of *Scotomanes ornatus*] the markings [white patches] are much less distinct' The holotype of *Nycticejus emarginatus* (♀, preserved in rectified spirit) was examined. Its phalangeal epiphyses are rather swollen. Therefore, the specimen is not fully adult. Thus, the small morphometric differences between the holotype of *emarginatus* and only three examples of *ornatus* (possibly from the same area too), as noted by Sinha & Chakraborty (*loc. cit.*), do not appear to be sufficient enough to justify maintaining *emarginatus* as a distinct species. *Nycticejus emarginatus* is, therefore, considered here as a synonym of *Scotomanes ornatus*. Incidentally, Dr. Karl. F. Koopman (personal communication), after examining the type-specimen of *emarginatus* has agreed that it should be treated synonymous with *ornatus*.

Genus ***Scotophilus*** Leach, 1821

Two species and subspecies of the genus *Scotophilus* occur in Meghalaya.

Key to the species and subspecies of the genus ***Scotophilus***

Larger (forearm more than 55.0 mm) ..... *Scotophilus heathi heathi*

Smaller (forearm 55.0 mm or less) ..... *Scotophilus kuhli kuhli*

43. ***Scotophilus kuhli kuhli*** Leach

1821. *Scotophilus kuhli* Leach, *Trans. Linn. Soc. Lond.*, 13 : 72 (type-locality unknown, but India, according to Hill & Thonglongya 1972).

Common name : Lesser Yellow Bat (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : Ears small, tips rounded; tragus semilunar, posterior border markedly convex, anterior border concave, tip slender and forward pointing; wing from side of foot near base of toes; tip of tail free; fur short, dense and sleek; dorsal colour olive-brown, ventral colour creamy white with a tinge of red.

Distribution : India : Meghalaya : Garo Hills (Hinton & Lindsay 1926); widely distributed practically throughout the Indian Union, including Nicobar Islands (Blyth 1863*b*, Hill 1967). Pakistan (Walton 1974), Sri Lanka, Bangladesh (Blyth 1963*a*), Myanmar.

Remarks : Ellerman & Morrison-Scott (1951) have used *Scotophilus temmincki wroughtoni* Thomas, 1897 for the Lesser Yellow Bat of India, Sri Lanka and Myanmar. Hill & Thonglongya (1972), however, have shown that the name *Scotophilus kuhli kuhli* Leach should be used for this.

44. ***Scotophilus heathi heathi*** (Horsfield)

1831. *Nycticejus heathii* Horsfield, *Proc. zool. Soc. Lond.* : 113 (Madras = Madras, Madras district, Tamil Nadu, India).

Common name : Greater Yellow Bat (Eng.).

Material examined : West Garo Hills district : 1 ♀, Tura, coll. S. W. Kemp, 1917.

Measurements : External : 1 ♀ : Fa 58.5; Tl -; E 15.5; Tb 22.7; F & Cl 10.4. Cranial : 1♀ : *l* 20.9; *cb* 20.1; *ccl* 19.2; *mtr* 7.5; c^1 c^1 6.9; *iw* 5.8; *cw* 10.4; *zw* ; m^3 m^3 9.5; *c* m^3 8.5; *ml* 15.1.

Diagnosis : Very much similar to the Lesser Yellow Bat, but larger; ventral parts lemon-yellow to orange-yellow.

Distribution : India : Meghalaya : West Garo Hills district; widely distributed throughout the Indian mainland, east at least to Tripura (specimen in ZSI). Afghanistan (Meyer-Öehme 1965), Pakistan, Nepal (Agrawal & Chakraborty 1971), Sri Lanka, Bangladesh (Hutton 1872), Myanmar.

Remarks : Ellerman & Morrison-Scott (1951) have recognised two subspecies of the Greater Yellow Bat, *viz., S. h. heathi* and *S. h. belangeri* (I. Geoffroy, 1834), for the Indian populations. Siddiqi (1961*b*) has, however, synonymised *belangeri* with the nominate subspecies.

Genus ***Plecotus*** E. Geoffroy, 1818

One species and subspecies of the genus *Plecotus* has been recorded from Meghalaya.

45. ***Plecotus auritus homochrous*** Hodgson

1847. *Plecotus homochrous* Hodgson *J. Asiat Soc. Beng.*, 16 : 895 (Central region of sub-Himalayas = Darjiling, Darjiling district, West Bengal, India).

Common name : Long-eared Bat (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : A medium-sized (forearm around 38.0 mm) vespertilionine bat with very large ears, nearly as long as forearm, joined by low band across forehead at bases of inner margins; tragus very long; upper parts greyish; lower parts dirty white.

Distribution : India : Meghalaya : Khasi Hills (Dobson 1876); Jammu & Kashmir (Sharma & Sharma 1976, Chakraborty 1983); Himachal Pradesh (Hutton 1872); Uttar Pradesh; West Bengal; Sikkim (Ali 1981). Pakistan (Dobson 1876), Nepal (Sanborn 1950).

Remarks : Ellerman & Morrison-Scott (1951) have treated *homochrous, puck* Barrett-Hamilton, 1907 (type-locality : Murree, The Punjab, Pakistan) and *wardi* Thomas, 1911 (type-locality : Leh, Ladakh, Jammu & Kashmir, India) as subspecies of *Plecotus auritus* (Linnaeus, 1758). Most of recent

authorities, however, consider *puck* as a synonym of *homochrous*, while *wardi* is a subspecies of the allied species *P. austriacus* Fischer, 1829. Incidentally, Tate (1942) also indicated that *puck* might be the same as *homochrous*. It is quite interesting to note that Dobson (1876) also considered *homochrous* nothing but a subspecies of *P. auritus*.

Subfamily MINIOPTERINAE

The subfamily Miniopterinae consists of the single genus *Miniopterus*.

Genus ***Miniopterus*** Bonaparte, 1837

One species and subspecies of the genus *Miniopterus* occurs in Meghalaya.

46. ***Miniopterus schreibersi fuliginosus*** (Hodgson)

1835. *Vespertilio fuliginosa* Hodgson, J. *Asiat. Soc. Beng.*, 4 : 700 (Nepal).

Common names : Schreiber's Long-fingered Bat, Long-winged Bat or Bent-winged Bat (Eng.).

Material examined : South Garo Hills district : 31 ♂ 19 ♀ Siju Cave, coll. Y P. Sinha, 22.xi.1990, 26 30.vii.1991, 23 26.x.1991, 17.ii.1992, 3.vi.1992.

Measurements : External : 31 ♂ : Fa 49.0 52.0(51.0); Tl 55.0 67.0(61.0); E 11.0 14.0(12.0); Tb 20.0 23.0(22.0); F & Cl 10.0 12.0(11.5). 19 ♀ : Fa 47.0 53.0(50.0); Tl 56.0 64.0(58.0); E 11.0 12.0(11.6); Tb 21.0 22.0(21.5); F & Cl 10.0 11.0(10.5). Cranial : 5 ♂ : *l* 16.6 17.7(17.1); *mtr* 7.0(5); *cw* 8.0 8.7(8.4); *zw* 9.5 10.0(9.9); m^3 m^3 7.3 8.0(7.6); *ml* 12.7 -13.5(13.1). 5 ♀ : *l* 16.5 17.1(16.9); *mtr* 6.9 7.1(7.0); *cw* 8.2 9.0(8.6); *zw* 9.4 10.0(9.8); m^3 m^3 7.5 8.3(7.8); *ml* 12.1 12.5(12.3).

Diagnosis : A medium-sized (forearn between 45.0 and 50 mm) verpertilionid bat; head greatly elevated above faceline; ears much shorter than head, inner margin much convex, outer margin emarginate opposite base of tragus; terminal phalanx of longest finger flexed forward on under surface of metacarpal; wings from near the ankle; tail totally included within interfemoral membrane; colour of fur varies from blackish brown to reddish brown.

Distribution : India : Meghalaya : South Garo Hills district; Uttar Pradesh; Maharashtra (Wroughton 1916); Karnataka (Bhat & Sreenivasan 1981); West Bengal (Allen 1908). Eastern Afghanistan (Gaisler 1970), possibly Pakistan (Gaisler 1970), Nepal, Sri Lanka, Myanmar.

Remarks : In recent years, there has been much discussion on the taxonomy of the genus *Miniopterus*. Hill's (1983) view has principally been accepted here to enumerate the distributional range of *Miniopterus schreibersi fuliginosus*.

Subfamily MURININAE

Two genera of the subfamily Murininae occur in Meghalaya.

Key to the genera of the subfamily MURININAE

Last upper molar normal ..... ***Murina***

Last upper molar much reduced, often deciduous ..... ***Haripocephalus***

Genus ***Murina*** Gray, 1842

Two species and subspecies of the genus *Murina* have been reported from Meghalaya.

Key to the species and subspecies of the genus ***Murina***

Upper half of outer margin of ear concave ..... *Murina tubinaris*

Upper half of outer margin of ear convex ..... *Murina cyclotis cyclotis*

47. ***Murina tubinaris*** (Scully)

1881. *Harpiocephalus tubinaris* Scully, *Proc. zool. Soc. Lond.* : 200, fig. 1 (Gilgit, Gilgit district, Jammu & Kashmir, India).

Common name : Scully's Tube-nosed Bat (Eng.).

Material examined : None.

Measurement : Nil.

Diagnosis : Small (forearm around 31.0 mm) tube-nosed bat; ears rather broader and rounded, small lobe at base of anterior margin, less prominent emargination on posterior margin; dorsal surface grey, ventral surface greyish white, pelage dark brown at base; forearms, tail, legs and uppper surface of interfemoral membrane thinly covered with hair; anterior upper and lower premolars reduced.

Distribution : India : Meghalaya : Jaintia Hills district (Hinton & Lindsay 1926); Jammu & Kashmir; Himachal Pradesh (specimen in AMNH); West Bengal; Sikkim (Sanborn 1932); Arunachal Pradesh (Hinton & Lindsay 1926). Pakistan (Koopman & Danforth 1989), Myanmar, Vietnam, Laos, Thailand (Hill 1983).

Remarks : Ellerman & Morrison-Scott (1951) listed *tubinaris* as a tentative subspecies of *Murina huttoni*, but Hill (1962, 1964) has shown that *tubinaris* should be treated as a species distinct from *huttoni*, on grounds of its pelage characteristics and size.

48. ***Murina cyclotis cyclotis*** Dobson

1872. *Murina cyclotis* Dobson, *Proc. Asiat. Soc. Beng.* : 210 (Darjeeling = Darjiling, Darjiling district, West Bengal, India)

Common name : Round-eared Tube-nosed Bat (Eng.).

Material examined : East Kasi Hills district : 1 ♀ Risa Colony, coll. Y P. Sinha, 15. vii. 1989.

Measurements : External : 1 ♀ : Fa 33.0; Tl 33.0; E 14.0; Tb 15.0; F & Cl 8.0. Cranial : 1 ♀ : *l* 16.0; *mtr* 5.5; c^1 c^1 4.0; *cw* 7.2; *zw* 9.2; m^3 m^3 6.0; c m_3 6.0; *ml* 11.0.

Diagnosis : Medium-sized (forearm 33.5, on average); ears braod, rounded, small lobe at base of anterior margin, posterior margin without emargination; dorsal surface warm rufous brown to ferrugenous, ventral surface greyish white with brownish tinge, especially along flanks, individual hairs brown at bases; forearms, tail, feet and upper surface of interfermoral membrane covered with hairs; anterior upper and lower premolars less reduced.

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district (Hinton & Lindsay 1926); Andhra Pradesh (Ghosh 1989); West Bengal; Sikkim. Nepal (specimen in ZSI, Myanmar, southern China (Honacki *et al.* 1982) including Hainan Island, Vietnam, Laos, Thailand (Hill & Thonglongya 1972), Philippine Islands.

Remarks : Scully (1888) reported a specimen of *Harpyiocephalus leucogaster* from Nepal. This specimen (present in ZSI, examined) is, in fact, an example of *Murina cyclotis cyclotis*.

Genus ***Harpiocephalus*** Gray, 1842

One species of the genus *Harpiocephalus* occurs in Meghalaya.

49. ***Harpiocephalus mordax*** Thomas

1932. *Harpiocephalus mordax* Thomas, *J. Bombay nat. Hist. Soc.*, 29 : 88 (Mogok, northern Myanmar).

Common name : Broad-skulled Hairy-winged Bat (Eng.).

Material examined : East Khasi Hills district : 1 ♀, Cherra Punji, coll. H. H. Godwin-Austen, 1868.

Measurement : External : 1 ♀ : Fa 50.2; Tl 54.0; E 15.5; Tb 22.5; F & Cl 11.2. Cranial : 1 ♀ : *l* 22.9; *cr* 5.3; *mtr* 7.2; c^1 c^1 6.7; *iw* 5.9; *cw* 10.6; *zw* 14.5; m^3 m^3 7.8; *c* m_3 8.4; *ml* 15.3.

Diagnosis : Very much like a tube-nosed bat, but larger; fur thick and woolly, extends to legs, feet, interfermoral membrane and tail; wings haired on both surfaces, thinly haired toward tips; bright rusty or bright rufous above, greyish buff below; cranial rostrum well developed, broad and heavy; incisors, canines and premolars much enlarged, stoughter and heavier; last premolar often slightly braoder than first molar.

Distribution : India : Meghalaya : East Khasi Hills district (Dobson 1876, as *H. harpia*; Das 1986*a*, as *H. harpia lasyurus*); West Bengal (specimen in ZSI); Sikkim (Das 1986*a*, as *H. harpia lasyurus*). Myanmar, Thailand (McBee *et al.* 1986), Borneo (Hill & Francis 1984).

Remarks : Ellerman & Morrison-Scott (1951) considered *Harpiocephalus mordax* as a subspecies of *Harpiocephalus harpia* (Temminck, 1840), with some doubt. But McBee *et al.* (1986) have treated it as a distinct species.

Subfamily KERIVOULINAE

The subfamily Kerivoulinae is represented in Meghalaya by the genus *Kerivoula* only.

Genus ***Krivoula*** Gray, 1842

The genus *Kerivoula* is represented in Meghalaya by a single species and subspecies.

50. ***Kerivoula hardwickei depressa*** Miller

1906. *Kerivoula depressa* Miller. *Proc. biol. Soc. Wash.*, 19 : 64 (Biapo, Karen Hills, southern Myanmar).

Common name : Hardwicke's Bat (Eng.).

Material examined : South Garo Hills district : 1 ♀ Siju Cave, coll. A. S. Rajagopal, 1. ii. 1965. Jaintia Hills district : 1 ♂, 1 ♀, Khonshnong, coll. H. W. Wells, 25. vii. 1920; 1 ♂ 1 ♀ Shangpung, coll. H.W. Wells, 11. vii. 1920, 14. viii. 1920.

Measurements : External : 2 ♂ : Fa 34.0(2); Tl 44.0, 47.0; E 14.0(2); Tb 16.1, 16.2; F & Cl 7.5, 7.7. 3 ♀ : Fa 34.0 35.0(34.5); Tl(2) 37.0, 46.0; E(2) 12.0, 14.0; Tb 16.2 17.4(16.8); F & Cl 7.2 8.9(7.8). Cranial : 2 ♂ : *l* 13.6, 15.0; *cb* 12.4, 14.6; *mtr* 5.4, 5.5; c^1 c^1 3.0, 3.1; *iw* 3.2, 3.4; *cw* (1) 7.0; m^3 m^3 5.3, 5.5; *c* m_3(1)6.1; *ml* 9.7, 9.8. 2 ♀ : *l* 13.9, 14.0; *cb*(1) 13.2; *mtr* 5.6(2); c^1 - c^1(1) 3.4; *iw*(1) 3.3; *cw* 6.9, 7.4; *zw* 8.7, 8.8; m^3 m^3 5.4, 5.5; *c* m_3 5.8, 5.9; *ml* 9.2, 9.9.

Diagnosis : A rather medium sized (forearm around 34.0 mm) kerivouline bat; ears longer, tip rounded, inner margin convex, outer margin deeply concave below tip; tragus long and slender; wing from base of toes; posterior margin of interfemoral membrane fringed with very few hairs; greyish brown above and below, basal half of hair dark brown.

Distribution : India : Meghalaya : South Garo Hills district, East Khasi Hills district (Dobson 1876), Jaintia Hills district (Hinton & Lindsay 1926); Jammu & Kashmir (Chakraborty 1983); Madhya Pradesh (specimen in ZSI); West Bengal; Assam (Dobson 1876); Nagaland (Khajuria 1953). Pakistan (Blanford 1891), Myanmar, southern China, Vietnam (Osgood 1932), Cambodia (Dobson 1878), Thailand (Lekagul & McNeely 1977).

Remarks : Ellerman & Morrison-Scott (1951) have considered the northern Indian population as belonging to the nominate subspecies. Hill (1965), however, has shown that this population should be regarded as *K. h. depressa.*

ORDER PRIMATES

Flattened or cupped nails on elongated fingers and toes; arms and legs adapted for climbing and other purposes; first digit of hind foot largest, opposable and prehensile, that of fore foot usually smaller; large skull; complete bony rim around orbits; reduced dentition; complete set of collar bones; distinctness of radius and ulna and of tibia and fibula; well developed brain; eyes provide two separate overlapping visual images, resulting in three dimensional vision.

Three families of the order Primates occur in Meghalaya.

Key to the families of the order PRIMATES

1. Fore limbs much longer than hind, tail absent ..... Hylobatidae

   Fore limbs not longer than hind, tail present 2

2. All digits with nails ..... Cercopithecidae

   Second digit of hind limb with small claw ..... Lorisidae

Family LORISIDAE

One species and subspecies of the genus *Nycticebus* of the present family occurs in Meghalaya.

Genus *Nycticebus* E. Geoffroy, 1812

51. *Nycticebus coucang bengalensis* (Lacepéde)

1800. *Loris bengalensis* Lacepéde, *Seances des Ècoles normales*, 8 : 68 (Bengal).

Common names : Slow Loris (Eng.), *Gilwe* (local).

Material examined : East Khasi Hills district : 1 ♂ Shillong, coll. G. F. Gale, 16. v. 1973.

Measurements : External : 1 ♂ : HB 340.0; Hf 55.0; E 23.0.

Diagnosis : About the size of a half-grown cat; short ears and stumpy tail almost hidden in thick fur, which varies in colour; brown ring round owl-Hike eyes; brown streak on crown and back.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, East Khasi Hills district; Assam; Tripura. Bangladesh, Myanmar, Thailand.

Family CERCOPITHECIDAE

In Meghalaya, the family Cercopithecidae is represented by two genera.

Key to the genera of the family CERCOPITHECIDAE

Cheek-pouch present; tail variable but generally smaller than head and body; face reddish ..... ***Macaca***

Cheek-pouch absent; tail always longer than head and body; face blackish ..... ***Presbytis***

Genus *Macaca* Lacepede, 1799

Four species of the genus *Macaca* occur in Meghalaya.

Key to the species of the genus ***Macaca***

1. Tail inconspicuous, reduced to a stump and seldom longer than 30.0 mm ..... *M. arctoides*

   Tail conspicuous, less than half or about half the length of head and body 2

2. Tail thin and short-haired, less than half the length of head and body, carried in an arch above; hairs on crown short, radiating to form a dark blackish cap ..... *M. nemestrina*

Tail normally haired, generally about half the length of head and body, pendulous and not carried in an arch above; no definite cap on crown 3

3. Hind quarters brighter than fore quarters and orange-red to reddish in colour; hairs on crown not radiating from centre; skin naked around the ischial callosities ..... *M. mulatta*

Hind quarters typically duller than fore quarters and greyish (never reddish or orange-red) in colour; hairs on crown indistinctly radiating from centre, at least behind the brow-ridge; skin haired to edge of ischial callosities ..... *M. assamensis*

Macaca nemestrina (Linnaeus)

Only one subspecies of *Macaca nemestrina* occurs in Meghalaya.

52. ***Macaca nemestrina leonina*** Blyth

1863. *Macacus leoninus* Blyth, *Cat. Mammalia Mus. Asiat. Soc.* : 7 (Northern Arakan, Myanmar).

Common name : Pig-tailed macaque (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : A long-muzzled, long-legged, short-tailed, rather baboon-like monkey; coat light brown; a conspicuous black crown-patch and a black stripe running down top of tail; tail thin, densely furred, not much longer than head.

Distribution : India : Meghalaya : East Garo Hills district; Assam; Nagaland. Myanmar, Thailand, Malaya Peninsula.

53. ***Macaca mulatta*** (Zimmermann)

The nominate subspecies of *Macaca mulatta* occurs in Meghalaya.

Macaca mulatta mulatta (Zimmermann)

1780. *Cercopithecus mulatta* Zimmermann, *Geogr. Gesch. Meusch.*, 2 : 195 (India).

Common name : Rhesus Macaque (Eng.), *Makk-re* (local).

Material examined : None.

Measurement : Nil.

Diagnosis : Medium-sized monkey with tail about half of head and body length; hair on head lying straight back; fur on loins and rump orange-red coloured; face flesh-coloured.

Distribution : India : Meghalaya : Garo Hills district; Andhra Pradesh; Arunachal Pradesh; Assam; Bihar; Delhi; Gujarat; Himachal Pradesh; Jammu & Kashmir; Madhya Pradesh; Orissa; Punjab; Rajasthan; Sikkim; Tripura; Uttar Pradesh; West Bengal. Bangladesh, Bhutan, China; Myanmar, Thailand, Vietnam.

Remarks : The Rhesus Macaque, though common in other parts of India, is rather uncommon in Meghalaya.

Macaca assamensis (M'Clelland)

The nomiante subspecies of *Macaca assamensis* occurs in Meghalaya.

54. *Macaca assamensis assamensis* (M'Clelland)

1839. *Macacus assamensis* M'Clelland, *in* Horsfield, *Proc. zool. Soc. Lond.* : 148 (Assam).

Common name : Assamese Macaque (Eng.), *Makk-re* (local).

Material examined : None.

Measurement : Nil.

Diagnosis : Almost like the Rhesus Macaque, but distinguished by absence of orange-red hue on loins and rump.

Distribution : India : Meghalaya : Garo Hills district; Arunachal Pradesh; Assam; Nagaland. Bangladesh, Myanmar, east to Vietnam, southern China.

Remarks : The Assamese Macaque is restricted to hilly areas.

55. *Macaca arctoides* (I. Geoffroy)

1831 *Macacus arctoides* I. Geoffroy, *Voyage aux Indes-Orientales,* Mammiferés : 61 (Cochinchine).

Common name : Stump-tailed Macaque (Eng.), *Makk-re* (local).

Material examined : None.

Measurement : Nil.

Diagnosis : Tail stump-like, almost naked, hardly 50.0 mm in length; colour dark brown with bare red face.

Distribution : India : Meghalaya : Garo Hills district; Arunachal Pradesh; Assam; Nagaland. Bangladesh, Myanmar, southern China, erstwhile Indochina, northern Malaya Peninsula.

Remarks : The Stump-tailed Macaque is rare in Meghalaya.

Genus *Presbytis* Eschscholtz, 1821

Two species of the genus *Presbytis* occur in Meghalaya.

Key to the species of the genus *Presbytis*

Hairs on crown radiating in all directions from a point on forehead ..... *P. entellus*

Hairs on crown directed backward to form a distinct cap ..... *P. pileatus*

56. *Presbytis entellus* (Dufresne)

1797. *Simia entellus* Dufresne, *Bull. Soc. Philom. Paris*, 1, 7 : 49 (Bengal, India).

Common name : Langur, Entellus Monkey (Eng.).

Material examined : None.

Measurement : Nil.

Diagnosis : A black-faced, grey-bodied monkey with long limbs and tail; coat ashy grey, darker on shoulders and rump, paler on head and lower parts.

Distribution : India : Meghalaya : East Garo Hills district; Bihar; Delhi; Gujarat; Haryana; Madhya Pradesh; Orissa; Punjab; Rajasthan; Uttar Pradesh; West Bengal. Bangladesh.

Remarks : The occurrence of the langur in Meghalaya is very doubtful.

presbytis pileatus (Blyth)

Only the nominate subspecies of *Presbytis pileatus* occurs in Meghalaya.

57. ***Presbytis pileatus pileatus*** (Blyth)

1843. *Semnopithecus pileatus* Blyth, *J. Asiat. Soc. Beng.*, 12 : 174. (Locality unknown).

Common name : Capped Monkey (Eng.), *Rangol* (local).

Material examined : West Garo Hills district : 1 unsexed, Tura, coll. H. W. Wells, 8. iii. 1920. Ri-Bhoi district : 1 ♂, Manihar Basti, 14 km N of Nongpoh, coll. H. L. Hiteshi, 4. vi. 1949. Khasi Hills : 1 ♂ coll. H. H. Godwin-Austen, 11. v. 1870.

Measurements : Cranial : 1 ♂ : *l* 106.5; *cb* 82.1; *mw* 36.2; *mtr* 42.5; *orb* 26.1; *zw* 78.0.

Diagnosis : Slender-build monkey with a crown of errect, long hairs directed backwards from forehead; colour dark grey on back and limbs, yellowish white on cheeks and underparts.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, West Khasi Hills district, Ri-Bhoi district, East Khasi Hills district, Jaintia Hills district; Assam; Nagaland. Bangladesh.

Remarks : The Capped Monkey is quite common in Meghalaya and is seen in all the districts of the state.

Family HYLOBATIDAE

The family Hylobatidae consists of the genus *Hylobates*.

Genus ***Hylobates*** Illiger, 1811

Only one species of the genus *Hylobates* occurs in Meghalaya. It is the only ape found in India.

58. ***Hylobates hoolock*** (Harlan)

1834. *Simia hoolock* Harlan, *Trans. Am. phil. Soc.*, 4 : 52 (Garo Hills, Meghalaya).

Common name : Hoolock Gibbon (Eng.), *Hu-ro* (local).

Material examined : Ri-Bhoi district : 1 ♂, 8 km E of Nongpoh (*c* 1,067 m), coll. H. L. Hiteshi, 28. v. 1949; 1 ♂,11 km W of Nongpoh (*c* 1,219 m), coll. H. L. Hiteshi, 10. v. 1949; 1 ♀, 1 Juv., Manihar Basti (*c* 762 m), 13 km N of Nongpoh, coll. H. L. Hiteshi, 15. vi. 1949.

Measurement : External : 1 ♂ : HB 500.0; Hf 147.0; E -. 2 ♀ : HB 500.0(2); Hf 152.0, 160.0; E 28.0, 35.0. Cranial : 1 ♂ : *l* 112.8; *cb* 95.1; *mw* 36.3; *mtr* 44.8; *orb* 23.0; *zw* 71.5. 1 ♀ : *l* 111.7; *cb* 94.3; *mw* 36.2; *mtr* 44.1; *orb* 23.1; *zw* 69.5.

Diagnosis : About 600.0 mm in head and body length; males and young females black, adult females yellowish-grey; eye-brow white.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, West Khasi Hills district, Ri-Bhoi; Assam; Tripura. Bangladesh, Myanmar, China.

Remarks : The Hoolock Gibbon is fairly common in suitable localities of Meghalaya.

Order PHOLIDOTA

Elongated, tapering body; posterodorsal area of head, dorsal and lateral aspects of body and tail covered with large, imbricate scales; ventral surface covered with coarse, bristly hairs; limbs short; toes with powerful claws; jaws devoid of teeth; tongue vermiform and highly protrusible.

Order Pholidota consists of a single family.

Family MANIDAE

The family Manidae consists of only one genus.

Genus ***Manis*** Linnaeus, 1758

One species and subspecies of the genus *Manis* has been reported from Meghalaya.

59. ***Manis pentadactyla aurita*** Hodgson

1836. *Manis aurita* Hodgson, *J. Asiat. Soc. Beng.*, 5 : 234 (Lower and central Nepal).

Common name : Chinese Pangolin (Eng.) *Kewate* (local).

Material examined : East Khasi Hills district : 1 unsexed, Shillong, coll. K. Reddiah, 10. iv. 1961.

Measurements : Nil.

Diagnosis : Head and body lengh 480.0 580.0 mm; body covered with 15 18 rows of longitudinal overlapping scales; dark brown in colour; bare skin of ventral surface flesh-coloured.

Distribution : India : Meghalaya : South Garo Hills district, East khasi Hills district; Assam; Nagaland. Nepal, Myamar, southern China.

Order CARNIVORA

Skull robust; front teeth consists of a pair of long sharp and sturdy canines with six closely set

incisors between them in each jaw; diastema between last incisor and upper canine, into which lower canine fits when mouth is closed; fourth upper premolar and first lower molar developed into carnassial (flesh-cutting) teeth; movement of jaw only up and down.

Six families of the order Carnivora occur in Meghalaya.

Key to families of the order CARNIVORA

1. Bulla much dilated, rounded but not divided into chambers by a septum; head elongate, with a long muzzle; limbs fairly developed; feet digitigrade; toes 5-4; two middle toe-pads placed much in advance of others; fifth tow of fore foot very short and not reaching ground; claws non-retrctilea .. .. CANIDAE

   Bulla much dilated, rounded, and divided into chambers by a septum 2

   Bulla not rounded but inflated, and not divided by a septum 4

   2.3-4 teeth in upper molar series of each jaw; toes 5-4; claws curved, sharp and retractile; head short and somewhat roundish, with shortened muzzle ..... FELIDAE

   6 teeth in molar series of each jaw (except in *Prionodon*); toes usually 5-5; claws variable; head elongated 3

   3.Auditory bulla oval or subconical; apex of paroccipital process projecting slightly beyond bulla; no bony tube to auditory orifice; ear moderate in size, with well developed bursa; claws curved and more or less retractile; prescrotal gland generally present ..... VIVERRIDAE

   Auditory bulla somewhat pear-shaped; paroccipital process not projecting beyond bulla; but spread out, and in adult, lost on its posterior surface; well developed bony tube to auditory orifice; ear much reduced, and lacking any marginal bursa; claws lengthened, exserted, non-retractile; prescrotal gland absent ..... HERPESTIDAE

4. True molars 1 1 in upper jaw, 2 2 in lower jaw; alisphenoid canal absent; body long and sinuous; soles of feet not entirely covered with hairs; skull sturdy ..... MUSTELIDAE

   True molars 2 2 in upper jaw; alisphenoid canal present; no carnassials, cheek-teeth tuberculate.. 5

5. True molars 2 2 in lower jaw; small-sized animals; tail moderately large; soles of feet completely covered by hairs; planter pads not very wide ..... PROCYONIDAE

   True molars 3 3 in lower jaw large animals; tail reduced to a mere stump; soles of feet not completely covered by hairs; planter pads very wide ..... URSIDAE

Family CANIDAE

The family Canidae is represented by three genera in Meghalaya. Each genus has one species in this state.

Key to the genera and species of the family CANIDAE

1. Tail less than half the length of head and body; female usually has 10 or 12- 14 mammae; forehead of skull elevated; frontal sinus present; postorbital process smooth and convex 2

Tail more than one-half the length of head and body; female usually has 6 mammae; forehead of skull flattened; no frontal sinus; postorbital process concave above..... *Vulpes bengalensis*

2. Ears more pointed at the tip; female usually has 10 mammae; 7 teeth in lower molar series ....*Canis aureus*

Ears more rounded at the tip; female usually has 12 14 mammae; six teeth in lower molar series ..... *Cuon alpinus*

Genus ***Canis*** Linnaeus, 1758

One species of the genus *Canis* is reported from Meghalaya.

60. ***Canis aureus*** Linnaeus

1758. *Canis aureus* Linnaeus, *Syst. Nat.* 10th ed, 1 : 40 (Province of Lar, Persia = Iran).

Common name : Asiatic Jackal (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : Smaller in built than Wolf, lacking the arching brows and elevated forehead. Coat colour variable-typically, a mixture of black and white, washed with buff about the shoulders, ears and legs.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, Jaintia Hills district; Arunachal Pradesh; Assam; Bihar; Manipur; Nagaland; Sikkim; Tripura; West Bengal. Bhutan, Myanmar, Thailand.

Genus ***Vulpes*** Oken, 1816

The genus *Vulpes* is represented in Meghalaya by one species.

61. ***Vulpes bengalensis*** (Shaw)

1800. *Canis bengalensis* Shaw, *Gen. Zool.*, 1(2) : 330 (Bengal).

Common name : Bengal Fox (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : A slender-limbed animal of about 45 60 cm in head and body length. Coat colour grey; back of ears sandy brown; tail-tip black.

Distribution : India : Meghalaya : Garo Hills. Occurs throughout India. Pakistan, Nepal, Bangladesh.

Genus ***Cuon*** Hodgson, 1838

The genus *Cuon* is represented in Meghalaya by one species.

62. ***Cuon alpinus*** (Pallas)

1811. *Canis alpinus* Pallas, *Zoogr. Ross. Asiat.*, 1 : 34 (Near Udskoi Ustrog, Amurland).

Common names : Dhole, Indian Wild Dog, Red Dog (Eng.), *Achak burung* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : General appearance like a domestic dog, with long, lanky body, and short legs and muzzle. Ears rounded at tip and tail quite bushy. Body colour deep red.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district; Sikkim; Uttar Pradesh; West Bengal. Nepal, Bhutan.

Family URSIDAE

Three genera of the family Ursidae occur in Meghalaya.

Key to the genera and species of the family URSIDAE

1. Six incisors in the upper jaw 2

   Four incisors in the upper jaw ..... *Melursus ursinus*

2. Larger, length usually over 150 cm; coat long; a white or buff V-shaped mark from the upper breast to both shoulders; claws black ..... *Selenarctos thibetanus*

   Smaller, length usually under 130 cm or so; coat very short; a white, U-shaped mark from upper breast to throat; claws pale horny, sometimes dusky ..... *Helarctos malayanus*

Genus ***Selenarctos*** Heude, 1901

The genus *Selenarctos* is represented in Meghalaya by one species.

63. ***Selenarctos thibetanus*** (G. Cuvier)

1823. *Ursus thibetanus* G. Cuvier, *Ossements Foss.*, 4 : 325 (Sylhet, Bangladesh).

Common name : Asiatic Black Bear (Eng.), Makbil-wak (local).

Material examined : Nil.

Measurement : None.

Diagnosis : Large-sized bear, 140-190 cm in head and body length; coat smooth, short and black; claws black; white or buff coloured V-shaped breast patch present.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district; Jammu & Kashmir; Mizoram; Sikkim; Uttar Pradesh; West Bengal. Pakistan, Bangladesh.

Genus ***Helarctos*** Horsfield, 1825

The genus *Helarctos* is represented in Meghalaya by one species.

64. ***Helarctos malayanus*** (Raffles)

1821. *Ursus malayanus* Raffles, *Trans. Linn. Soc. Lond.*, 13 : 254 (Bencoolen, Sumatra).

Common name : Malayan Sun Bear (Eng.).

Material examined : Nil.

Measurement : None.

Diagnosis : Smallest of bears, about 125 cm in head and body length; hairs short and close, black in colour; muzzle grey; white or yellow crescent on chest; claws large, white in colour.

Distribution : India Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district; Assam. Myanmar, Thailand, Malaysia, Sumatra, Borneo.

Genus ***Melursus*** Meyer, 1793

The genus *Melursus* is represented in Meghalaya by one species.

65. ***Melursus ursinus*** (Shaw)

1791. *Bradypus ursinus* Shaw, *Nat. Misc.*, 2 (unpaginated), pl. 58 (Patna, Bihar, India).

Common name : Sloth Bear (Eng.).

Material examined : East Khasi Hills district : 1 unsexed, near Shillong, 29. iv. 1879.

Measurements : None.

Diagnosis : A large-sized bear of 140 170 cm in head and body length. Coat rough and black, with or without a V-shaped breast patch. Claws ivory white in colour.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, Ri-Bhoi district, East Khasi Hills district; Assam; Bihar; Karnataka; Kerala; Madhya Pradesh; Maharashtra; Orissa; Uttar Pradesh; West Bengal. Bangladesh.

Family PROCYONIDAE

Only one genus of the family Procyonidae occurs in Meghalaya.

Genus ***Ailurus*** Cuvier, 1825

The genus *Ailurus* is monospecific. One subspecies occurs in Meghalaya.

66. ***Ailurus fulgens fulgens*** Cuvier

1825. *Ailurus fulgens* Cuvier, *in* Geoffroy & Cuvier, *Hist. nat. Mammal.*, 5(50) : Panda, 3 (Locality unknown).

Common names : Red Panda (Eng.), *Matchibel* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : Head rounded; muzzle stumpy; ears long, pointed; sole hairy. Dorsum bright chestnut; face and lower lip white. A red stripe runs from above the eye to the gape. Tail ringed.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district; Arunachal Pradesh; Sikkim; West Bengal. Nepal.

Family MUSTELIDAE

Six genera of the family Mustelidae occur in Meghalaya.

Key to the gnera of the family MUSTELIDAE

1. Body long and slender, with short limbs and small ears; feet adapted for running and climbing; claws short, sharp and partially rectractile; primarily terrestrial 2

   Body stout, bear-like, with broad feet and long sturdy nonrectractile claws; adapted for digging... 3

   Body long and slender, head broad and flat, feet rather large; tail thick and muscular; hind feet wider than fore feet; adapted to aquatic life 4

2. Larger animals, body less elongate; muzzle, limbs and tail relatively longer; nose long and pointed; ears larger; head and body over 450 mm; total 38 teeth in upper and lower jaws .... *Martes*

   Smaller animals, body more elongate; muzzle, limbs and tail relatively shorter; nose short and broad; ears smaller; head and body under 350 mm; total 34 36 teeth in upper and lower jaws .... *Mustela*

3. Smaller animals; distinctive black and white facial marks; ears with bursa; feet narrower; planter pads strongly arched; toes partly webbed; head and body under 400 mm ..... *Melogale*

   Larger animals; poorly marked facial marks; ears without bursa; feet broader and plantigrade; planter pads not arched; toes not webbed; head and body over 550 mm ..... *Arctonyx*

4. Smaller animals; paws relatively smaller; claws small; relatively little webbing between toes; head and body normally under 550 mm; total 34 teeth in upper and lower jaw ..... *Aonyx*

   Larger animals; paws relatively larger; claws longer; more complete webbing between toes; head and body normally over 550 mm; total 36 teeth in upper and lower jaw..... *Lutra*

Genus *Martes* Pinel, 1792

The genus *Martes* is represented in Meghalaya by one species and subspecies.

67. *Martes flavigula flavigula* (Boddaert)

1785. *Mustela flavigula* Boddaert, *Elench. Anim.*: 88 (Locality unknown, traditionally fixed as Nepal (Pocock).

Common name : Yellow-throated Marten (Eng.)

Material examined : Nil.

Measurements : None.

Diagnosis : Head and body length 40 65 cm, tail long and bushy. Colour variegated; crown, nape and extremities black; throat and cheeks white; chest yellow; rest of coat light brown.

Distribution : India : Meghalaya : West Garo Hils district; Arunachal Pradesh; Assam; Himachal Pradesh; Jammu & Kashmir; Nagaland; Sikkim; Uttar Pradesh; West Bengal. Afghanistan, Pakistan, Nepal, Bhutan, Myanmar, China.

Genus ***Mustela*** Linnaeus, 1758

The genus *Mustela* is represented in Meghalaya by one species.

68. ***Mustela kathiah*** Hodgson

1835. *Mustela (Putorius) kathiah* Hodgson, *J. Asiat. Soc. Beng.*, 4 : 702. (The Kachar, northern region of Nepal).

Common name : Yellow-bellied Weasel (Eng.).

Material examined : West Khasi Hills district : 1 unsexed, Rambari, 12 km NE of Nongstion, coll. A.K. Karmakar, 7. i. 1987. East Khasi Hills district : 1 ♂, 1 ♀, Kench's Terrace, Shillong, coll. S. K. Subhani, 15, 18. xii. 1961; 2 ♀, Bishnupur, Shillong, coll. Chandan Singh, C. B. Srivastava, 1, 9. v. 1961; 1 unsexed, Shillong, coll. P. B. Thapa, 16. viii. 1978; 1 unsexed, Tripura Castle Road, Shillong, coll. R. Mathew, 1. vii. 1982.

Measurements : External 1 ♀ : HB 240.0; Tl 135.0; Hf 36.0; E 14.5. Cranial : 1 ♂ : *l* 41.4; *cw* 21.7; pm_4 3.5; pm^3 3.3; *mtr* 11.3; *orb* 6.7; c^1 c^1 6.9; *iw* 9.1. 1 ♀ : *l* 41.0; *cw* 22.0; pm_4 3.8; pm^3 3.5; *mtr* 10.6; *orb* 6.8; c^1 c^1 6.4; *iw* 8.9. 2 unsexed : *l* 42.8, 43.8; *cw* 21.3, 21.4; pm_4 4.7, 4.8; pm^3 4.4, 4.5; *mtr* 13.7, 13.8; *orb* 6.6, 6.7; c^1 c^1 7.2, 7.4; *iw* 9.0(2).

Diagnosis : Small, about 28 cm in head and body length. Coat dark chocolate-brown above, yellow below. Tail not bushy.

Distribution : India : Meghalaya : West Khasi Hills district, East Khasi Hills district; Arunachal Pradesh; Assam; Nagaland; Sikkim; Uttar Pradesh; West Bengal. Bhutan, Myanmar, China.

Genus ***Melogale*** I. Geoffroy, 1831

The genus *Melogale* is represented in Meghalaya by one species and subspecies.

69. ***Melogale personata nipalensis*** (Hodgson)

1836. *Gulo nipalensis* Hodgson, *J. Asiat. Soc. Beng.*, 5 : 237 (Nepal).

Common name : Burmese Ferret-Badger (Eng.).

Material examined : Khasi Hills, 1 unsexed, coll. T. LaTouche.

Measurements : None.

Diagnosis : Coat deep purplish grey to brown; face-marks and underside yellow; a narrow whitish stripe runs from crown down the middle of back to rump. Molar tooth massive and broad.

Distribution : India : Meghalaya : Khasi Hills district; Sikkim; West Bengal. Nepal.

Genus ***Arctonyx*** F. Cuvier, 1825

The genus *Arctonyx* is represented in Meghalaya by one species and subspecies.

70. ***Arctonyx collaris collaris*** F. Cuvier

1825. *Arctonyx collaris* F. Cuvier, *Hist. Nat. Mammal.*, 3(51), pl. & texts (Bhutan Duars = Jalpaiguri district, West Bengal, India).

Common names : Hog-Badger (Eng.), *Wak-sel* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : Short-tailed animal of 55 70 cm in head and body length; snout long and pig-like, limbs and gait bear-like; claws powerful. Coat is coarse, grey and rough on body, close and white with longitudinal black streaks on head, and black or very dark on limbs.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, West Khasi Hills district, Jaintia Hills district; Arunachal Pradesh; Assam; Manipur; Nagaland; Sikkim; West Bengal, Nepal, Bangladesh.

Genus ***Lutra*** Brisson, 1762

The genus *Lutra* is represented in Meghalaya by two species and subspecies.

71. ***Lutra lutra monticola*** Hodgson

1839. *Lutra monticolus* Hodgson, *J. Asiat. Soc. Beng.*, 8 : 320 (Nepal).

Common name : Common Otter (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : 60 80 cm in head and body length. Tail thick and muscular. Feet paddle-like, the hind larger than fore. Colour brown, grizzled above; cheeks, throat and underparts whitish. Hairs of the muzzle terminate in an angular line above the naked part of nose.

Distribution : India : Meghalaya : Jaintia Hills district; Arunachal Pradesh; Assam; Punjab; Sikkim; Uttar Pradesh; West Bengal. Nepal.

72. ***Lutra perspicillata perspicillata*** I. Geoffroy

1826. *Lutra perspicillata* I. Geoffroy, *Dict. Class. Hist. nat.*, 5 : 519 (Sumatra).

Common name : Smooth-coated Indian Otter (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : Shorter and stoutly built with smooth sleek coat. Colour, blackish to rufous chocolate-brown, dorsal fur not grizzled; white on underparts not extending below chest. Hairs of muzzle terminate in a straight line above naked part of nose.

Distribution : India : Meghalaya : West Garo Hills distric; Andhra Pradesh; Arunachal Pradesh; Assam; Bihar; Karnataka; Kerala; Madhya Pradesh; Nagaland; Orissa; Pondicherry; Tamil Nadu; Uttar Pradesh; West Bengal. Bangladesh, Myanmar, China, Vietnam, Malaysia, Indonesia.

Genus ***Aonyx*** Lesson, 1827

The genus *Aonyx* is represented in Meghalaya by one species and subspecies.

73. ***Aonyx cinerea concolor*** (Rafinesque)

1832. *Amblonyx concolor* Rafinesque, *Atlantic J.*, 1 : 62 (Garo Hills, Meghalaya, India).

Common name : Oriental small-clawed Otter (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : Small-sized otter of about 60 cm in head and body length. Two middle toes of feet noticeably longer than others. Colour, dark brown above, paler below; white underparts limited to neck and shades into brown on chest.

Distribution : India : Meghalaya : West Garo Hills district, Jaintia Hills district; Arunachal Pradesh; Assam; Himachal Pradesh; Mizoram; Nagaland; Sikkim; Uttar Pradesh; West Bengal. China.

Family VIVERRIDAE

Five genera of the family Viverridae occur in Meghalaya.

Key to the genera of the family VIVERRIDAE

1. Ears tufted; tail prehensile ..... ***Arctictis***

   Ears not tufted; tail not prehensile 2

2. Feet terrestrial and digitigrade; carpal pad single; metacarpal pads absent; scent glands opening into highly specialised pouches 3

   Feet scansorial and semi-plantigrade; carpal and metacarpal pads double; glandular pouches less specialised 4

3. Anterior edge of ears widely separated; a dorsal crest of hairs extends posteriorly at least from shoulders ..... ***Viverra***

Anterior edge of ears set close together; no dorsal crest of long hairs ..... ***Viverricula***

4. A definite pattern of dorsal stripes and lateral spots present at least in new coat .... ***Paradoxurus***

No pattern of stripes or spots present ..... ***Paguma***

Genus ***Viverra*** Linnaeus, 1758

The genus *Viverra* is represented in Meghalaya by one species and subspecies.

74. ***Viverra zibetha zibetha*** Linnaeus

1758. *Viverra zibetha* Linnaeus, *Syst. Nat. 10th edn* 1 : 44 (India).

Common name : Large Indian Civet (Eng.).

Material examined : Ri-Bhoi district : 1 ♂ Mohin Basti, 14 km E of Nongpoh, coll. H. L. Hiteshi, 28. v. 1949. East Khasi Hills district : 2 unsexed, Shillong, purchased, 1. iii. 1961, 7. v. 1961.

Measurements : External : 1 ♂ : HB 810.0; Tl 442.0; Hf 127.0; E 50.0

Diagnosis : Markings of body indistinct and cloudy; complete dark and light rings on tail; crest present on back of long, black, erectile hairs; anterior upper molar distinctly triangular.

Distribution : India : Meghalaya : West Garo Hills district (Agrawal *et al.*, 1992), Ri-Bhoi district, East Khasi Hills district, jaintia Hills district (Agrawal *et. al.* 1992); Arunachal Pradesh; Assam; Bihar; Madhya Pradesh; Mizoram; Nagaland; Sikkim. Bangladesh, Myanmar, Thailand, Vietnam, Malaysia, Singapore.

Genus ***Viverricula*** Hodgson, 1838

The genus *Viverricula* is represented in Meghalaya by one species.

75. ***Viverricula indica*** (Desmarest)

1817. *Viverra indica* Desmarest, *Nouv. Dict. nat. Hist.*, 7 : 170 (India).

Common name : Small Indian Civet (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : Smaller than a common cat, shorter legs longer tail. Coat greyish-brown, more or less striped and spotted lengthways with black; tail ringed with black and white. Muzzle short and weak. No dorsal crest of long hairs on back.

Distribution : India : Meghalaya : West Garo Hills district; Andhra Pradesh; Arunachal Pradesh; Assam; Bihar; Goa; Gujarat; Himachal Pradesh; Jammu & Kashmir; Karnataka; Kerala; Madhya Pradesh; Maharashtra; Manipur; orissa; Sikkim; Tamil Nadu; Tripura; Uttar Pradesh; West Bengal. Sri Lanka, Bhutan, Bangladesh.

Genus ***Paradoxurus*** Cuvier, 1821

The genus *Paradoxurus* is represented in Meghalaya by one species.

76. ***Paradoxurus hermaphroditus*** (Pallas)

1777. *Viverra hermaphrodita* Pallas, *In* Schreber, *Die Saügethiere,* 3 : 426 (India).

Common names : Common Palm Civet, Toddy Cat (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : About 55 cm in head and body length with tail nearly as long; fur coarse, long and ragged with an indistinct mixture of black and grey. Muzzle and extremities blackish; young often striped or spotted.

Distribution : India : Meghalaya : East Garo Hills district; throughout India. Sri Lanka, China, Malaysia, Indonesia, Philippines.

Genus ***Paguma*** Gray, 1831

The genus *Paguma* is represented in Meghalaya by one species and subspecies.

77. ***Paguma larvata neglecta*** Pocock

1934. *Paguma larvata neglecta* Pocock, *J. Bombay nat. Hist. Soc.,* 37 : 334 (Mokokchung, c 1372 m, Naga Hills, Nagaland, India).

Common name : Masked Pam Civet (Eng.).

Material examined : Khasi Hills : 1 unsexed, coll. T. LaTouche,-.

Measurements : None.

Diagnosis : Absence of spots or stripes on body and presence of white whiskers distinguises it from other Indian Civets. Coat colour grey to tawny; underparts white. Underwool brownish or grey. A white band on forehead, nose and beneath ears, and a blotch below eyes.

Distribution : India : Meghalaya : East Garo Hills district; Khasi Hills district; Assam; Nagaland; Sikkim. Myanmar.

Genus ***Arctictis*** Temminck, 1824

The genus *Arctictis* is represented in Meghalaya by one species.

78. ***Arctictis binturong*** (Raffles)

1821 *Viverra ? binturong* Raffles, *Trans. Linn. Soc. Lond.,* 13 : 253 (Malacca).

Common names : Binturong (Eng.), *Matchuri Rongol* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : About the size of a pariah dog, but with short legs and very long tail; head short and broad, muzzle narrow; eyes and ears small, latter tufted. Fur coarse, ragged, black in colour, more or less grizzled on forequarters.

Distribution : India : Meghalaya : Garo Hills district; Assam; Sikkim. Nepal, Bhutan, Myanmar, Thailand, Malaysia, Sumatra, Java, Borneo.

Family HERPESTIDAE

The family Herpestidae is represented in Meghalaya by the genus *Herpestes* only.

Genus ***Herpestes*** Illiger, 1811

The genus *Herpestes* is characterised by elongated body and short, rounded ears, mostly concealed by hairs; contour hairs with alternate dark and light bands, giving a speckled appearance; post-dental portion of palate extending to back side halfway over the mesopterygoid fossa.

Three species of the genus *Herpestes* are known from Meghalaya.

Key to the species of the genus ***Herpestes***

1. A conspicuous white stripe on either side of neck ..... *H. urva*

   Absence of any stripe on sides of neck 2

2. Contour hairs long, many banded and usually coarse; legs darker than body ..... *H. edwardsi*

   Contour hairs short, with less number of bands, and soft; legs not darker than body .... *H. auropunctatus*

79. ***Herpestes auropunctatus*** (Hodgson)

1836. *Mangusta auropunctata* Hodgson, *J. Asiat. Soc. Beng.*, 5 : 235 (Nepal).

Common name : Small Indian Mongoose (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : Size smaller, about 25 cm in head and body length, sleek in appearance. Tail shorter than head and body. Fur shoft, silky, olive-brown in colour and gold-flecked.

Distribution : India : Meghalaya : Jaintia Hills district; Arunachal Pradesh; Assam; Bihar Himachal Pradesh; Jammu & Kashmir; Manipur; Nagaland; Orissa; Sikkim; Uttar Pradesh; West Bengal. Nepal, Bhutan.

80. ***Herpestes edwardsi*** (Geoffroy)

1818. *Ichneumon edwardsii* E. Geoffroy, Déscr. *Egypte*, 2 : 139 (East Indies, Madras, according to Pocock 1933).

Common name : Indian Grey Mongoose (Eng.).

Material examined : West Garo Hills district : 1 ♂, Phulbari, coll. A. S. Rajagopal, 19. ii. 1965.

Measurements : External : 1 ♂ : HB 326.0; Tl 373.0; Hf 68.0; E 18.0.

Diagnosis : Tawny yellowish-grey in colour, no stripes on sides of neck. Fur grizzled, rather rough, rusty on head and feet. Eyes reddish brown, claws dark brown. Tail as long as body, tipped with white or yellowish-red.

Distribution : India : Meghalaya : West Garo Hills district; Assam; Bihar; Gujarat; Madhya Pradesh; Orissa; Sikkim; Uttar Pradesh; West Bengal. Nepal, Bangladesh.

81. ***Herpestes urva*** (Hodgson)

1836. *Gulo urva* Hodgson, *J. Asiat. Soc. Beng.*, 5 : 238 (Nepal).

Common name : Crab-eating Mongoose (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : A white stripe running along each side of neck to shoulders distinguishes it from other mongooses. Fur, coarse, ragged, dusky iron-grey in colour; under-fur woolly, dark brown at bases, pale brownish-yellow at tips.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district; Arunachal Pradesh; Assam; Nagaland; Tripura; West Bengal. Bangladesh, Myanmar, Thailand, China, Taiwan, Vietnam.

Family FELIDAE

Three genera, namely, of the family Felidae occur in Meghalaya.

Key to the genera of the family FELIDAE

1. Large-sized cats; hyoidean apparatus modified by the conversion of median parts of suspensor into a long elastic tendon ..... ***Panthera***

   Medium or small-sized cats; hyoidean apparatus of normal mammalian type, suspensor consists of a chain of bones jointed end to end 2

2. Small-sized cats; postorbital process long and well developed; canines relatively short; post-canine space normal ..... ***Felis***

   Meduim-sized cat; postorbital process short; canine long; post-canine space large ..... ***Neofelis***

Genus ***Felis*** Linnaeus, 1758

Four species of the genus *Felis* occur in Meghalaya.

Key to the species of the genus ***Felis***

1. Outer chamber of bulla relatively large, partition arising from some distance of orifice; tip of postorbital process about the middle of skull; nasal branch of premaxilla broad ..... *F. chaus*

   Outer chamber of bulla small, partition arising close to orifice; tip of postorbital process in front on middle of skull 2

2. Skull short, wide and high; mastoid width more than half of condylobasal length; posterior edtge of palate deeply notched laterally; mesopterygoid fossa lanceolate or ovate in front ..... *F. marmorata*

   Skull long, narrow and low; mastoid width more than half of condylobasal length; shallow emargination on each side of hinder edge of palate; mesopterygoid fossa truncated, with median notch in front 3

3. Larger; nasal branch of premaxilla slender; maxilla not extended above; nasals not compressed..... *F. temmincki*

   Smaller; nasal branch of premaxilla broad; maxilla expanded above; nasals compressed ..... *F. bengalensis*

82. ***Felis chaus*** Güldenstaedt

1776. *Felis chaus* Guldenstaedt, *Nov. Com. Acad. Petrop.*, 20 : 483 (Terak river, north of Caucasus).

Common names : Jungle Cat (Eng.), *Mengo burung* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : Medium-sized, 60 75 cm in head and body length; tail shorther, tipped black. General colour light reddish-grey, unspotted except on lower flanks and elnbor; bnlack horizontal stripes present on inner side of fore legs. Ears reddish chestnut with a rudimentary hair tuft.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district; South Garo Hlls district; Assam; Arunachal Pradesh; Himachal Pradesh; Jammu & Kashmir; Manipur; Nagaland; Sikkim; Uttar Pradesh; West Bengal. Nepal.

83. ***Felis marmorata*** Martin

1837. *Felis marmorata* Martin, *Proc. Zool. Soc. Lond.*, 1836 : 108 (Sumatra).

Common names : Marbled Cat (Eng.), *Mengo burung* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : Small-sized, 45 60 cm in head and body length. Body covered with irregular blotches, black spots on outer side of limbs, uppersurface of tail and on undersurface. Ears rounder. Ground colour brownish-grey.

Distribution : India : Meghalaya : Garo Hills district; Arunachal Pradesh; Assam; Nagaland; Sikkim; West Bengal. Nepal, Bhutan, Myanmar.

84. ***Felis temmincki*** Vigors & Horsfield

1827. *Felis temmincki* Vigors & Horsfield, *Zool. J.*, 3 : 451 (Sumatra).

Common name : Golden Cat (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : A fairly large cat, 76 84 cm in head and body length; long-tail. Colour chestnut; a horizontal white cheek-stripe from below eyes to behind gape; ears black or brownish-black on outer side with pale central spot; imperfect bands on throat; chin and under-part of tail white; underparts generally pale with dusky spots.

Distribution : India : Meghalaya : East Garo Hills district; South Garo Hills district; Arunachal Pradesh; Assam; Mizoram; Nagaland; Sikkim; Tripura; West Bengal. Nepal, Bangladesh, Myanmar, China, Malaysia, Vietnam, Borneo, Indonesia.

85. ***Felis bengalensis bengalensis*** Kerr

1792. *Felis bengalensis* Kerr, *Anim. Kindg.* : 151. (Southern Bengal = West Bengal, India).

Common names : Leopard Cat (Eng.), *Mengo apru* (local).

Material examined : East Khasi Hills district : 1 ♂ Laban, Shillong, purchased, 14. xii. 1962. Khasi Hills : 1 unsexed, Umtham, coll. S. Biswas, 21. ii. 1977.

Measurements : None.

Diagnosis : Small-sized cat, 61 66 cm in head and body length, rather short tail. Colour variable, pelage ornamented with blackish brown spots; back of ears black with round whitish spot in centre; four longitudinal black banmds from forehead to neck which break up into short bands or elongated spots on shoulders; tail spotted above.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, Ri-Bhoi district, East Khasi Hills district, Jaintia Hills district; Andhra Pradesh; Arunachal Pradesh; Assam; Maharashtra; Manipur; Nagaland; Orissa; Karnataka; Kerala; Tamil Nadu; Tripura; West Bengal. Bangladesh, Myanmar, Thailand, Yunan, erstwhile Indo-China.

Genus ***Neofelis*** Gray, 1867

The genus *Neofelis* is represented in Meghalaya by one species.

86. ***Neofelis nebulosa*** (Griffith)

1821 *Felis nebulosa* Griffith, *Descr. Anim. (Carn.)* : 37, pl. (Canton, Kwantung, southern China).

Common names : Clouded Leopard (Eng.), *Matcha Bolgasonakani* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : Large-sized cat, 66 117 cm in head and body length, tail long; fur close and sleek with a distinct pattern of large patches placed close together and edged behind with black; ground colour grey or buff, the patches darker. Head and limbs with black spots, tail black-ringed.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district; Arunachal Pradesh; Assam; Mizoram. Nepal, Bhutan, Myanmar.

Genus ***Panthera*** Oken, 1816

Two species of the genus *Panthera* occur in Meghalaya.

Key to the species of the genus ***Panthera***

Ground colour of body orange-tawny, with black stripes.....*P. tigris*

Ground colour of body yellow, with distinct black spots arranged in rosettes..... *P. pardus*

87. ***Panthera pardus fusca*** (Meyer)

1794. *Felis fusca* Meyer, *Zool. Ann.*, 1 : 394 (Bengal).

Common names : Leopard (Eng.), *Matcha-peng* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : A sleek, short-haired animal; colour pale fulvous yellow, with clearly defined black spots in rosettes.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, Ri-Bhoi district, East Khasi Hills district; throughout India in suitable habitats. Sri Lanka, Bangladesh, Myanmar, China.

88. ***Panthera tigris tigris*** (Linnaeus)

1758. *Felis tigris* Linnaeus, *Syst. Nat.*, 10th edn., 1 : 41 (Bengal).

Common names : Tiger (Eng.), *Matcha* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : A large, heavy-bodied animal with short, close hairs, colour varies from pale yellow ochre to burnt sienna, with black stripes arranged irregularly.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district; throughout India except, deserts of Rajasthan, and Punjab and Gujarat. Nepal, Bangladesh, Myanmar.

Order PROBOSCIDEA

Only the family Elephantidae occurs in Meghalaya.

Family ELEPHANTIDAE

The family Elephantidae is represented in Meghalaya by a single genus.

Genus ***Elephas*** Linnaeus, 1758

The genus *Elephas* is represented in Meghalaya by a single species and subspecies.

89. ***Elephas maximus indicus*** G. Cuvier

1797. *Elephas indicus* G. Cuvier, *Tbal. Elem. Hist. nat.* : 148 (India).

Common names : Indian Elephant (Eng.), *Mongma* (local).

Material examined : None.

Measurements : Nil.

Diagnosis : Largest of land animal of India; well-known by its trunk, at the end of which nostrils are placed; lower lip small, pointed and spout-like; body blackish grey throughout; tail thin, long with coarse bristles at end; eyes very small, ears large and flat.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, Ri-Bhoi district; Arunachal Pradesh; Assam; Bihar; karnataka; Kerala; Mizoram; Nagaland; Orissa; Tamil Nadu; Tripura; Uttar Pradesh; West Bengal. Bangladesh, Bhutan, Myanmar, Thailand, Vietnam, Malaya, Sumatra, Borneo.

ORDER ARTIODACTYLA

Animals belonging to the order Artiodactyla are even-toed; axis of foot passes between third and fouth toes; toes enclosed in horny hooves of approximately equal size, giving the appearance of a single hoof split down in the middle.

The order Artiodactyla is represented by there families in Meghalaya.

Key to the families of the order ARTIODACTYLA

1. Upper incisors absent; horns or antlers present, at least in males.... 2

   Upper incisors present; animals devoid of horns or antlers ..... SUIDAE

2. Horns consist of a hollow outer sheath and an inner bony core, unbranched and permanent..... ..... BOVIDAE

   Antlers solid, branched, ornamented with knot and ridges, and shed periodically ..... CERVIDAE

Family SUIDAE

The family Suidae is represented in Meghalaya by a single genus, species, subspecies.

90. *Sus scrofa cristatus* Wagner

1939. *Sus cristatus* Wanger, *Munch. Gelehrt. Anz.*, 9 : 435 (Probably Malabar Coast, India).
Common names : Wild Boar (Eng.), *Wak burung* (local).

Material examined : West Garo Hills district : 1 ♂ above Tura (c 1,214 m), coll. S. W. Kemp,—.

Measurement : None.

Diagnosis : 76 102 cm Height at shoulders; coat coarse, a crest of black bristles from nape to back; tail long, thin, fringed at tip, barely reaching hocks; first coat of pig dark brown, striped lengthways with buff.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, Ri-Bhoi district; throughout India, in forested tracts. Pakistan, Sri Lanka, Nepal, Bangladesh, Myanmar, Indonesia, Malaysia, Vietnam.

Family CERVIDAE

Three genera of the family Cervidae occur in Meghalaya.

Key to the genera of the family CERVIDAE

1. Upper canine tusk-like in males; antlers short, consisting of a short brow-tine and an unbranched beam..... ***Muntiacus***

   upper canine, when present, not tusk-like; antlers long and branched; bony phalanges present in lateral digits 2

2. Body, of adults distinctly spotted; brow-tine set at right angle to geam of antler .....***Axis***

   Body unspotted; brow-tine form an acute angle with beam of antler ..... ***Cervus***

Genus *Muntiacus* Rafinesque, 1815

The genus *Muntiacus* is represented in Meghalaya by one species and subspecies.

91. *Muntiacus muntjak vaginalis* (Boddaert)

1785. *Cervus vaginalis* Boddaert, *Elench. Anim.*, 1 : 136 (Bengal).

Common name : Barking Deer (Eng.), *Balgatchak* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : Antler small, consisting of a short brow-tine and an undbranched beam, set on bony

hair-covered pedicel, extending down on each side of face as bony ridges. Upper canines tusk-like. Tail about as long as head. Coat close, sleek, bright bay in colour, with black streaks along face-ridges inside, extending to pedicel in buck; throat, groin and under-side of tail white.

Distributions : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, Ri-Bhoi district, East Khasi Hills district; Arunachal Pradesh; Assam; Bihar; Sikkim; Tripura; Uttar Pradesh; West Bengal. Bhutan, Bangladesh, northern Burma, Yunan, northern Vietnam.

Genus *Axis* Smith, 1827

Two species of the genus *Axis* occur in Meghalaya.

Key to the species of the genus *Axis*

Small in size, height at shoulders less than 76.0 cm; generally not spotted .....*A. porcinus*

Larger in size, height at shoulders more than 76.0 cm; adults spotted .....*A. axis*

92. *Axis axis axis* (Erxleben)

1777. *Cervus axis* Erxleben, *Syst. Regn. Anim.* : 312 (Bank of the Ganges, India.).

Common names : Spotted Deer, Chital (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : Coat bright rufous-fawn, with white spots; lower series of spots on flanks arranged in longtudinal rows. Antlers with three lines, a long brow-tine set at right angles to beam and two branches (tines) at top; outer tine, continuation of beam, is longer.

Distribution : India : Meghalaya : Ri-Bhoi district, East Khasi Hills district; peninsular India, northward to Kumaon in Uttar Pradesh and Sikkim, and eastward to West Bengal and Assam. Sri Lanka, Nepal, Bangladesh.

93. *Axis porcinus* (Zimmermann)

1780. *Cervus porcinus* Zimmermann, *Geogr Gesch.*, 2 : 131 (Bengal).

Common name : Hog Dear (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : Fur brown with a yellowish or reddish tinge, more or less marked with white or pale spots above. Underparts of body paler, inside of ears and under-side of tail white. Antlers small, set upon long bony pedicel, brow-tine slanting sharply upwards, beam almost straight, divides into longer-fore and shorter hind tine.

Distribution : India : Meghalaya Ri-Bhoi district; Arunachal Pradesh; Assam; Bihar; Punjab; Tripura; Uttar Pradesh; West Bengal. Nepal, Sri Lanka (introduced).

Genus *Cervus* Linnaeus, 1758

Two species of the genus *Cervus* occur in Meghalaya.

Key to the species of the genus *Cervus*

Each antler, in adults, normally with more than 3 tines; brow-tine forming an angle of 90° with beam ..... *C. duvauceli*

Each antler, in adults, normally with 3 tines; brow-antler forming an acute angle with beam; latter bifurcates to give rise to two strong tines only ..... *C. unicolor*

94. *Cervus unicolor equinus* G. Cuvier

1823. *Cervus equinus* Cuvier, *Oss. Foss.* 2nd edn., 4 : 45 (Sumatra).

Common names : Sambar (Eng.), *Matchok* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : Largest Indian deer; coat coarse and shaggy; a mane present, in stag, about neck and throat; general colour brown with yellowish or greyish tinge; old stag very dark, almost black; underparts paler; females lighter in tone. Antler stout and rugged, brow-tine forming acute angle with main beam which forks at summit into two equal tines.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, Ri-Bhoi district, East Khasi Hills district; Arunachal Pradesh; Assam; West Bengal. Myanmar, China, Thailand, Malaysia, Sumatra, Yunan, erstwhile Indo-China.

95. *Cervus duvauceli* G. Cuvier

1823. *Cervus duvaucelii* G. Cuvier, *Oss. Foss.* 2nd edn., 4 : 505 (North India).

Common names : Swamp Deer, Barasingha (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : Large in size, height at shoulders 105 130 cm; coat almost woolly in texture, brown to yellowish brown; summer coat paler. A mane over neck present in stag.

Distribution : India : Meghalaya : East Khasi Hills district; Assam; Uttar Pradesh; West Bengal. Nepal.

Family BOVIDAE

Five genera of the family Bovidae occur in Meghalaya.

Key to the genera of the family BOVIDAE

1. Size small; horns in males only, not so long as head; generally 4 horns; tail short.... ***Tetraceros***

   Size large; horns in both sexes, not much different in size 2

2. Horns inserted far apart, at the extremites of vertex..... 3

   Horns closely set, conical, backwardly curved and ringed 4

3. Horns triangular in cross section, transversely ridged, exceeding 92 cm in length ..... ***Bubalus***

   Horns oval in cross-section, smooth, less than 92 cm in length..... ***Bos***

4. Skull with a distinct ridge across cheek in front of eyes; no antaorbital depression..... ..... ***Nemorhaedus***

   Skull with a shallow depression in front of eyes for reception of antaorbital gland..... .....***Capricornis***

Genus ***Tetraceros*** Leach, 1825

The genus *Tetraceros* is monospecific.

96. ***Tetracerus quadricornis*** (Blainville)

1816. *Cerophorus* (*Cervicapra*) *quadricornis* Blainville, *Bull. Soc. Philom. Paris* : 75 (Peninsular India).

Common names : Four-Horned Antelope, Chousingha (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : Colour dull red-brown above, white below; a dark stripe down the front of each leg, broader in fore legs. Male with one or two pairs of short, straight horns, female hornless.

Distribution : India : Meghalaya : West Garo Hills district; peninsular India from Tamil Nadu and Eastern Ghats in the south, northward to Gujarat.

Remarks : Occurrence of this animal in Meghalaya is much doubtful, probably mis-identified for *Nemorhaedus goral.*

Genus ***Bos*** Linnaeus, 1958

One species of the genus *Bos* occurs in Meghalaya.

97. ***Bos gaurus*** H. Smith

1827. *Bos gaurus* H. Smith, Griffith's *Cuvier Anim. Kingd.*, 4 : 399 (Mainpat, Surguja district, Madhya Pradesh, India).

Common names : Gaur, Indian Bison (Eng.), *Matdi marong* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : Males 175 196 cm in height at shoulders, females a little smaller. A muscular ridge, present on shoulders, slopes down to middle of back where it ends in an abrupt dip. General colour coffee or reddish brown, jet black in old bulls; forehead ashy; stockings yellowish or white.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district; Arunachal Pradesh; Andhra Pradesh; Assam; Bihar; Goa; Karnataka; Kerala; Madhya Pradesh; Maharashtra; Mizoram; Nagaland; Orissa; Rajasthan; Tamil Nadu; Uttar Pradesh; West Bengal. Nepal, Bangladesh.

Genus ***Bubalus*** H. Smith, 1827

One species of the genus *Bubalus* occurs in Meghalaya.

98. ***Bubalus bubalis*** (Linnaeus)

1758. *Bos bubalis* Linnaeus, *Syst. Nat.* 10th ed., 1: 72 (Rome, Italy).

Common names : Indian Buffalo, Water Buffalo (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : A robust animal, long-headed, short-legged with large hoofs and straight back. Body-colour slaty black, feet dirty white. Horns transversely ridged and triangular in cross section.

Distribution : India : Meghalaya : Occurrence of the present species in Meghalaya is yet to be confirmed; Assam; Madhya Pradesh; Maharashtra; Orissa; West Bengal. Sri Lanka (probably feral).

Genus ***Capricornis*** Ogilby, 1837

The genus *Capricornis* is represented by one species.

99. ***Capricornis sumatraensis*** (Bechstein)

1799. *Antilope sumatraensis* Bechstein, *Ubers. vierf. Thiere.*, 1 : 98 (Sumatra).

Common names : Serow (Eng.), *Matrong* (local).

Material examined : Nil.

Measurements : None.

Diagnosis : Males 100 110 cm height at shoulders, with large head and thick neck; ears like those of donkeys. Coat coarse, grizzled black on back, rusty red on shoulders, flanks and thigh; limbs chestnut above, dirty white below.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, East Khasi Hills district; Arunachal Pradesh; West Bengal.

Genus ***Nemorhaedus*** H. Smith, 1827

The genus *Nemorhaedus* is represented by one species.

100. ***Nemorhaedus goral*** (Hardwicke)

1825. *Antilope goral* Hardwicke, *Trans. Linn. Soc. Lond.*, 14 : 518 (Nepal Himalaya).

Common name : Goral (Eng.).

Material examined : Nil.

Measurements : None.

Diagnosis : Height at shoulder 65 - 75 cm. Coat golden or rufous brown, speckled black; throat white; black spinal stripe up to root of tail, indistinct on rump; tail black above. Both the sexes have conical, backwardly curved horns, nearly parallel, 12 15 cm in length.

Distribution : India : Meghalaya : West Garo Hills district; Sikkim; West Bengal.

Order LAGOMORPHA

Only one family of the order Leporidae occur in Meghalaya.

Family LEPORIDAE

Only one genus of the family Leporidae occurs in Meghalaya.

Genus ***Lepus*** Linnaeus, 1758

One species of the genus *Lepus* occurs in Meghalaya.

101. ***Lepus nigricollis ruficaudatus*** Geoffroy

1826. *Lepus ruficaudatus* Geoffroy, *Dict. Class. Hist. nat.*, 9 : 381 (Bengal).

Common name : Black-naped Hare (Eng.).

Material examined : South Garo Hills district : 1 unsexed, Baghmara, coll. J. R. B. Alfred, 28. i. 1985. Ri-Bhoi district : 1 ♀, Barapani (*c* 945 m), coll. H. L. Hiteshi, 21. v. 1949.

Measurements : Nil.

Diagnosis : Head and body 40 50 cm in length; ears longer than tail; fur coarse, reddish-brown mixed with black above; throat, belly and under-side of tail white; upper-side of tail brown; a grey patch on nape.

Distribution : India : Meghalaya : East Garo Hills district, South Garo Hills district; Assam; Madhya Pradesh; Nagaland; Orissa; Rajasthan; Sikkim; Tripura; Uttar Pradesh; West Bengal. Nepal, Bangladesh.

Order RODENTIA

Rodents which are cosmopoliton in distribution, are characterised by having a pair of chisel-shaped incisors in each jaw, and a distinct diastema between incisors and molar teeth. In Meghalaya, they are represented by four families.

Key to the families of the order RODENTIA

1. Body covered with spines or quills: angular portion of mandible arising from outer side of body socket of incisor; cheek-teeth 4/4 ..... HYSTRICIDAE

   Body not covered with spines or quills; angular portion of mandible arising from lower edge of body socket of incisors..... 2

2. Skull with distinct postorbital process; premolars 2 on each side in upper jaw, only 1 in the lower; cheek-teeth (except in the genus *Ratufa*) 5/4.....SCIURIDAE

   Skull with no postorbital process; premolars absent; cheek-teeth 3/3 3

3. Slender in form; tail long, scaly and clothed with short hairs..... MURIDAE

   Heavt in form, cylindrical, mole-like; tail short or rudimentary, alomst naked and not scaly; limbs short ..... RHIZOMYIDAE

Family SCIURIDAE

In Meghalaya, the family Sciuridae is represented by seven genera.

Key to the genera of the family SCIURIDAE

1. Presence of flying membrane (patagium) on both sides of body 2

   Absence of flying membrane 4

2. Surface pattern of lower molar teeth simple and possesses a central depression ..... ***Hylopetes***

   Surface pattern of lower molar teeth excessively wrinkled and lacks a central depression.....3

3. Interfemoral membrane absent; ear-tuft present; size small, less than 20 cm in head and body length..... ***Belomys***

   Interfemoral membrane present; ear-tuft absent; size large, more than 30 cm in head and body length..... ***Petaurista***

4. Size large, over 28 cm in head and body length maxillary teeth 4 in number..... ***Ratufa***

   Size small, less than 28 cm in head and body length; maxillary teeth 5 in number.....5

5. Dorsal side of body prominently striped; stripes more than one in number 6

   Dorsal side of body usually unstriped.....7

6. Larger; median stripe of body white or buff..... ***Funambulus***

   Smaller; median stripe of body black ..... ***Tamiops***

7. Length of nasal exceeds interorbital width of skull..... ***Dremomys***

   Length of nasal does not exceed interorbital width of skull ..... ***Callosciurus***

Genus ***Belomys*** Thomas, 1908

The genus *Belomys* is monospecific.

102. ***Belomys pearsoni*** (Gray)

1842. *Sciuropterus pearsoni* Gray, *Ann. Mag. nat. Hist.*, 10 : 263 (Darjeeling, West Bengal, India).

Common name : Hairy-footed Flying Squirrel (Eng.).

Material examined : None.

Measurements : Nil.

Diagnosis : Small-sized, head and body length about 20 cm; fur rufous brown; undersurface fulvous white; a long pencil of hairs on base of ear-conch.

Distribution : India : Meghalaya : Garo Hills district; Arunachal Pradesh; Assam; Nagaland; Sikkim. Bhutan.

Genus ***Petaurista*** Link, 1795

Three species of the genus *Petaurista* occur in Meghalaya.

Key to the species of the genus ***Petaurista***

1 Size large, hind foot over 80 mm 2

Size smaller, hind foot 65 78 mm 3

2. Shoulder patch very indistinct; head including forehead, white, strongly constrasted with back; ears white ..... *P. alborufus*

3. Shoulder patch indistinct, more or less concolourous with back; ears red ..... *P. petaurista*

Shoulder patch distinct and confined to pectorals, remaining dorsal surface uniformy coloured; ear almost the same colour as the body ..... *P. magnificus*

Petaurista petaurista (Pallas)

The species is represented by two subspecies in Meghalaya.

Key to the subspecies of ***Petaurista petaurista***

Occipitonasal length not less than 77 mm ..... *P. p. lylei*

Occipitonasal length not exceeding 73.1 mm ..... *P. p. albiventer*

103. ***Petaurista petaurista lylei*** Bonhote

1900. *Petaurista lylei* Bonhote, *Proc. zool. Soc. Lond.*, 192: (Doi Sritepe, Chiengmai, Siam = Philippines)

Common name : Common Giant Flying Squirrel (Eng.).

Material examined : East Garo Hills district : 1 ♀, Rongrengiri, coll. H. Khajuria, 29. vi. 1957. Khasi Hills : 1 ♂ -----, coll. H. L. Hiteshi, 15. iv. 1922.

Measurements : External : 1 ♂ : HB 415.0; TI 570.0; Hf 78.5; E 45.0. 1 ♀ : HB 480.0 ; TI 540.0; Hf 90.0; E 50.0. Cranial : 1 ♀ : *on* 79.7; *n* 24.1; *pl* 40.2; *mtr* 17.2; *b* 13.6; *iw* 20.1; *orb* 28.8.

Distribution : India : Meghalaya : East Garo Hills district. Myanmar, Thailand, erstwhile Indo-China.

104. ***Petaurista petaurista albiventer*** (Gray)

1834. *Pteromys albiventer* Gray, *Illustr. Ind. Zool.*, pl. xviii (Nepal).

Common name : Common Giant Flying Squirrel (Eng.).

Material examined : East Khasi Hills district : 1 unsexed, Cherra Punji, coll. F. Skipwith, —

Measurements : None.

Distribution : India : Meghalaya : West Garo Hills district, Ri-Bhoi district, East Khasi Hills district; Jammu & Kashmir; Nagaland; Punjab; Uttar Pradesh. Nepal.

105. ***Petaurista alborufus candidulus*** Wroughton

1911. *Petaurista candidulus* Wroughton, *J. Bombay nat. Hist. Soc.*, 20 : 1014, 1022 (Kindat, western Burma = Myanmar).

Common name : Red-and-White Flying Squirrel (Eng.).

Material examined : East Khasi Hills district : 1 unsexed, Shillong, coll. W. Laidlay, 1847.

Measurements : None.

Distribution : India : Meghalaya : East Khasi Hills district; Assam; Manipur; Nagaland. Myanmar.

106. ***Petaurista magnificus*** (Hodgson)

1836. *Sciuropterus magnificus* Hodgson, *J. Asiat. Soc.* Beng., 5 : 231 (Nepal).

Common name : Hodgson's Flying Squirrel (Eng.).

Material examined : East Garo Hills district : 1 unsexed foetus : Rongrengiri, coll. H. Khajuria, 29. i. 1957. Khasi Hills : 1 ♂ : Umtham, coll. B. K. Tikader, 16. vii. 1968.

Measurements : None.

Distribution : India : Meghalaya : East Garo Hills district, Khasi Hills; Sikkim; West Bengal. Nepal.

Genus ***Hylopetes*** Thomas 1908

The genus *Hylopetes* is represented in Meghalaya by one species and subspecies.

107. ***Hylopetes alboniger alboniger*** (Hodgson)

1836. *Sciuropterus alboniger* Hodgson, *J. Asiat. Soc. Beng.*, 5 : 231 (Nepal).

Common name : Phayre's Flying Squirrel (Eng.).

Material examined : East Khasi Hills district : 1 unsexed, Shillong, coll. T LaTouche, — Jaintia Hills district : 2 ♂ 2 ♀, Khonshnong (*c* 914 m), coll. H. W. Wells, 29 31. vii. 1920.

Measurements : External : None. Cranial : 2 ♂ : *on* 47.7, 47.9; *n* 13.3, 14.0; *pl* 23.1, 23.8; *mtr* 9.0, 10.5; b 8.7, 9.1; *iw* 10.1 (2)*orb*, (1)17.1. 2 ♀ : *on* 47.5, 49.7; *n* 13.9, 14.1; *pl* 24.3, 25.7; *mtr* 10.9/8, 10.9/8; *b* 8.5, 8.6, 3/9; *iw* 10,2, 9.8=2; *orb* 15.2.

Diagnosis : Dorsal colour greyish to reddish brown; white or light patches present in the region of shoulder; undersurface greyish; throat and chest tends to be whitish. Occipitonasal length mostly over 45 mm.

Distribution : India : Meghalaya : East Khasi Hills distict, Jaintia Hills district; Arunachal Pradesh; Manipur; Nagaland; West Bengal. Nepal, Bangladesh, Myanmar, China.

Genus ***Callosciurus*** Gray, 1867

The genus *Callosciurus* is represented by two species in Maghalaya.

Key to the species of the genus ***Callosciurus***

Width of frontals usually approximates to one-third of occipitonasal length or less.....
.....*C. pygerythrus*

Width of frontals clearly in excess of one third of occipitonasal length.....
.....*C. erythraeus*

108. ***Callosciurus erythraeus erythraeus*** (Pallas)

1779. *Sciurus erythraeus* Pallas, *Nov. Sp. quad. glir. Ord* : 377 (Locality unknown, but may be assumed to be some part of Assam).

Common name : Pallas's Squirrel (Eng.).

Material examined : West Garo Hills district : 2 ♂, Tura (*c* 398 m), coll. H. W. Wells, 22. ii. 1920; 2 ♀, Tura (*c* 1,189 m), coll S. W. Kemp, 1 ♂, Degrangiri, *c* 5 km from Rongram, coll. S. Biswas, 10. xi. 1973. East Garo Hills district : 2 ♂, Rongrengiri (*c* 450 m), coll. H. Khajuria, 11. i. 1957, 5. ii. 1957. Ri-Bhoi district : 4 ♂, 3 ♀, Nongpoh Valley (*c* 940 m), coll H. L. Hiteshi, 22. iv. 1949 13. vii. 1949. East Khasi Hills district : 1 unsexed, Shillong, coll. T. Latoucha, —

Measurements : External : 5 ♂: HB 228.0 245.0(237.0); Tl 202.0 227.0 (212.0); Hf 51.0 55.0(52.0); E 12.0 22.0(19.0). 6 ♂ : HB 233.0 263.0(243.0); Tl 220.0 244.0(229.0); Hf 48.0 54.0(51.0); E 12.0 25.0(19.0). Cranial : 2 ♂ : *on* 56.1, 57.1; *n* 16.8, 18.0; *pl* 26.8, 28.4; *mtr* 10.0,10.1; *n* 16.3, 16.6; *pl* 27.0, 27.1; *mtr* 10.2, 10.8; *b* 10.1, 11.1; *iw* 19.0, 21.0; *orb* 17.1, 17.4.

Distribution : India: Meghalaya : West Garo Hills district, East Garo Hills district, Ri-Bhoi district, East Khasi Hills district, Jaintia Hills district; Assam; Mizoram.

109. ***Callosciurus erythraeus erythrogaster*** (Blyth)

1842. *Sciurus erythrogaster* Blyth *J. Asiat. Soc. Beng.*, 11 : 970 (Manipur).

Common name : Pallas's Squirrel (Eng.).

Material examined : Nil.

Measurements : None.

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district; Assam; Manipur; Mizoram; Nagaland. Bangladesh Myanmar.

110. ***Callosciurus pygerythrus blythi*** (Tytler)

1854. *Sciurus blythii* Tytler, *Ann. Mag. nat. Hist.*, 14 : 172 (Dhaka, Bangladesh).

Common name : Irrawaddy Squirrel (Eng.).

Material examined : West Garo Hills district : 1 ♂ : Selbalgiri, coll. J. P. Sati, 18. x. 1985. East Garo Hills district : 3 ♀, 1 unsexed Rongrengiri, coll. H. Khajuria, 11. xi. 1956, 29. i. 1957. Ri-Bhoi district : 3 ♂ 6 ♀ : Nongpoh, coll. H. L. Hiteshi, 15. iv. 1949, 4. vi. 1949. East Khasi Hills district : 2 ♀ : Burnihat, coll. R. sherard, 20, 31. v. 1949; 1 ♀ : Umra Nangkiarae, Nongpoh, coll. H. Khajuria, 8. xi. 1956. Jaintia Hills district : 2 ♀ : Garampani, coll. H. Khajuria, 21, 26. xi. 1956.

Measurements : External : 4 ♂ : HB 145.0 202.0(182.0); Tl 144.0 191.0(168.0); Hf 38.0 46.0(42.0); E 18.0 21.0(20.0). 8 ♀ : HB 180.0 202.0(191.0); Tl 145.0 194.0(183.0); Hf 37 42.5(40.0); E 17.0 -20.5(19.0). Cranial : 1 ♂ : *on* 47.5; *n* 13.6; *pl* 23.5; *mtr* 9.2; *b* 8.5; *iw* 16.1; *orb* 15.9.4 ♀ : *on* 47.2 49.2(48.5); *n* 12.9 14.6(13.7); *pl* 23.3 24.6(23.8); *mtr* 8.7 9.4(9.0); *b* 8.8 8.9(8.8); *iw* 16.8(16.5); *orb* 14.9 16.3(15.7).

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, Ri-Bhoi district, East Khasi Hills district, Jaintia Hills district; Assam; Nagaland; Manipur; Tripura. Bangladesh Myanmar.

Genus ***Tamiops*** J. Allen, 1906

One species of the genus *Tamiops,* occurs in India as also in Maghalaya.

111. ***Tamiops macclellandi macclellandi*** (Horsfield)

1839. *Sciurus macclellandi* Horsfield, *Proc. zool. Soc. Lond.* : 152 (Assam).

Common name : Himalayan Striped Squirrel (Eng.).

Material examined : East Khasi Hills district : 1 ♂ Mawphlang (*c* 1,670 m), coll. A. K. Mandal, 29. i. 1964.

Measurements : None.

Distribution : India : Meghalaya : East Khasi Hills district; Assam; Manipur; Mizoram; Sikkim. Nepal, Bhutan Myanmar.

Genus ***Dremomys*** Heude, 1898

One species and two subspecies of the genus *Dremomys* occur in Meghalaya.

Key to the subspecies of ***Dremomys lokriah***

Belly washed with rich ochraceous; ear-patches white; back entirely without median black line .... *D. l. lokriah*

Belly washed with buffy or yellowish; ear-patches rufous; a dark median dorsal line usually present..... ..... *D. l. macmillani*

112. ***Dremomys lokriah lokriah*** (Hodgson)

1836. *Sciurus lokriah* Hodgson, *J. Asiat. Soc. Beng.*, 5 : 232. (Nepal).

Common name : Orange-bellied Himalayan Squirrel (Eng.), *Matwan* (local).

Material examined : East Khasi Hills district : 1 unsexed, Shillong, coll. T. LaTouche, — Khasi Hills : 1 ♂ Nongjuri, coll. B. Warren, -. v. 1909.

Measurements : External : None. Cranial : 1 ♂ 1 unsexed : *n* 12.7, 16.3; *pl* 22.6, 24.5; *mtr* 8.9(2); *b* (1) 8.3; 13.3, 13.4; *orb* 14.1, 15.0.

Distribution : India : Meghalaya : East Khasi Hills district, Assam; Mizoram; Sikkim. Nepal, Myanmar.

113. ***Dremomys lokriah macmillani*** Thomas

1916. *Dremomys macmillani* Thomas, *J. Bombay nat. Hist. Soc.*, 24 : 238 (Tatkon, western Burma = Myanmar).

Common name : Orange-bellied Himalayan Squirrel (Eng.).

Material examined : West Garo Hills district : 2 unsexed, Tura (*c* 400 m),coll. T. La-Touche S. W. Kemp Khasi Hills : 1 Juv. ♀, coll. H. W. Wells, 1920; 1 ♂ Wongkhlaw, *c* 17 km from Mairang, coll. E. D. Albinus, 1. xii. 1977.

Measurements : External : 1 ♂ : HB 168.0; Tl 122.0; Hf 49.0; E 18.0. 1 unsexed : HB 185.0; Tl 118.0; Hf 45.0; E 17.0. Cranial : None.

Distribution : India : Meghalaya : West Garo Hills district, Jaintia Hills district; Assam; Nagaland. Myanmar.

Genus ***Funambulus*** Lesson, 1835

One species of the genus *Funambulus* occurs in Meghalaya.

114. ***Funambulus pennanti*** Wroughton

1905. *Funanbulus pennanti* Wroughton, *J. Bombay nat. Hist. Soc.*, 16 : 411 (Mandvi Taluka, Surat district, Gujarat, India).

Common name : Northern Palm Squirrel (Eng.).

Material examined : Nil.

Measurements : None.

Distribution : India : Meghalaya : Khasi and Jaintia Hills; Andaman Islands; Bihar; Gujarat; Jammu & Kashmir; Madhya Pradesh ; Maharashtra; Orissa; Punjab; Rajasthan; Sikkim; Uttar Pradesh; West Bengal. Iran, Pakistan, Nepal, Bangladesh.

Genus ***Ratufa*** Gray, 1867

The genus *Ratufa* is represented in Meghalaya by one species and subspecies.

115. ***Ratufa bicolor gigantea*** (M'Clelland)

1839. *Sciurus giganteus* M'Clelland, *Proc. zool. Soc. Lond* : 150 (Assam).

Common name : Malayan Giant Squirrel (Eng.).

Material examined : West Garo Hills district : 1 ♀, Tura (c 152 m), coll. H. W. Wells, 23. xi. 1919. East Garo Hills district : 1 ♀, Rongrengiri, coll. H. Khajuria, 6. ii. 1957. Ri-Bhoi district : 1 ♀, Nongpoh (c 731 m), coll. Assam Survey, 4. vi. 1949; 1 ♀, Nongpoh Valley (c 914 m), coll. H. L. Hiteshi, 12. vi. 1949. Garo Hills : 1 unsexed, coll. J. Anderson, 1869.

Measurements : External : 3 ♀ : HB 360.0 407.0(382.3); Tl 470.0 499.0(479.6); Hf 70.0 90.0(80.3); E 25.0 32.0(29.0). Cranial : 1 ♀ : *on* 74.1; *n* 22.1; *pl* 32.6; *mtr* 14.1; *iw* 29.1; *orb* 25.1.

Diagnosis : A large-sized diurnal squirrel; dorsal colour varies from brown to black; venter buff.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, Ri-Bhoi district; Arunachal Pradesh; Assam; Mizoram; Nagaland; Sikkim; Tripura; West Bengal. Bhutan, Myanmar, China.

Family HYSTRICIDAE

Two genera, of the family Hystricidae are known from Meghalaya.

Key to the genera of the family HYSTRICIDAE

Tail short, clothed with spines, with hollow quills at the end ..... ***Hystrix***

Tail long, clothed with scales, with a tuft of bristles at the end ..... ***Atherurus***

Genus ***Hystrix*** Linnaeus, 1758

Two species, of the genus, *Hystrix* occur in Meghalaya.

Key to the species of the genus ***Hystrix***

A crest of bristles, 15 30 cm long, present on crown; quills bear several alternating white and blackish brown bands..... *Hystrix indica*

No crest of bristles present on corwn; quills bear only one dark band in the middle, rest white ....*Hystrix hodgsoni*

116. ***Atherurus macrourus assamensis*** *Thomas*

1921. *Atherurus assamensis* Thomas, *J. Bombay nat. Hist. Soc.*, 27 : 598 (Cherra Punji, East Khasi Hills district, Meghalaya, India).

Common name : Asiatic Brush-tailed Porcupine (Eng.).

Material examined : Nil.

Measurements : None.

Distribution : India : Meghalaya : East Khasi Hills district; Arunachal Pradesh.

117. ***Hystrix hodgsoni*** (Gray)

1847. *Acanthion hodgsoni* Gray, Proc. *zool. Soc. Lond.*, 101 (Nepal).

Common name : Crestless Hymalayan Porcupine, Chinese Porcupine (Eng.).

Material examined : Nil.

Measurements : None.

Distribution : India : Meghalaya : West Garo Hills district; Arunachal Pradesh; Assam; Nagaland; Sikkim; West Bengal. Nepal, Bangladesh.

Family RHIZOMYIDAE

The family Rhizomyidae is represented by two genera, in Meghalaya. Both the genera are adopted to subterranen mode of life. They have large proodont incisors, small eyes and ears, short limbs armed with strong claws.

Key to the genera of the family RHIZOMYIDAE

Size large, condylobsasal length of skull 57.0 mm; sole of feet granulated; mammae 10 ..... ***Rhizomys***

Size small, condylobasal length of skull less than 55.0 mm; sole pads not granulated; mammae 8..... ***Cannomys***

Genus ***Rhizomys*** Gray, 1831

One species and subspecies of the genus *Rhizomys occurs* in Meghalaya. Much larger than any other Indian rodent; colour dark brown; grizzled.

118. ***Rhizomys pruinosus pruinosus*** Blyth

1851 *Rhizomys pruinosus* Blyth, *J. Asiat. Soc.* Beng., 20 : 519 (Cherra Punji, East Khasi Hills district, Meghalaya, India).

Common name : Hoary Bomboo Rat (Eng.).

Material examined : East Garo Hills district : 1 ♀ Rongbangiri, *c* 6 km from Rongrengiri, Purchased, 1. ii. 1957. East Khasi Hills district : 1 Juv ♂, 1 Juv ♀, Cherra Punji (*c* 1,372 m), coll. H. W. Wells, 20. iv. 1920, 6. v. 1920.

Measurements : External : 1 Juv. ♂ : HB 110.0; Tl 25.0; Hf 18.0; E 9.0. 1 ♀ : HB 315.0; Tl 115.0; Hf 48.0; E 22.0. Cranial : 1 ♀ : *on* 64.3; *cb* 68.1; *n* 24.4; *pl* 40.7; *mtr* 13.4; *b* 11.2; *zw* 51.2; *iw* 10.4; *apf* 6.3; *d* 22.1.

Distribution : India : Meghalaya : East Garo Hills district, East Khasi Hills district; Assam; Manipur; Nagaland. Myanmar, erstwhile Indo-China.

Genus *Cannomys* Thomas, 1915

One species and subspecies of the genus *Cannomys* Hodgson occurs in Meghalaya. Smaller than *Rhizomys,* head and body about 20 cm; colour chestnut bay or ashy brown; not grizzled; tail about 7 cm or so; condylobasal length 49 53 mm.

119. *Cannomys badius badius* (Hodgson)

1841. *Rhizomys badius* Hodgson, *Calcutta J. nat. Hist.,* 2, 60, 410 (Nepal).

Common name : Bay Bamboo Rat, Lesser Bamboo Rat (Eng.).

Material examined : East Garo Hills district : 1 ♀, Dura Banda (*c* 488 m), coll. H. W. Wells, 12.iii. 1920; 4 ♀, Rongrengiri, coll. H. Khajuria, 28, 30, 31.i.1957, 9.ii.1957. East Khasi Hills district : 1 ♂, Cherra Punji (*c* 1, 400 m), coll. H. H. Godwin-Austen, –. Jaintia Hills district : 2 ♂ Hot spring (*c* 731 m), coll. H. W. Wells, 16,19, vii. 1920; 2 ♂ 1 ♀, Khonshnong (*c* 914 m), coll. H. W. Wells, 20, 24. vii. 1920.

Measurements : External : 2 ♂ : HB 170.0, 203.0; Tl 58.0(2); Hf 28.0, 29.0; E 9.0(2). 4 ♀ : HB 215.0 231.0(221.0); Tl 55.0 68.0(60.0); Hf 32.0 33.0(32.0); E 12.0 15.0(14.0). Cranial : 2 ♂ , *on* 40.4, 44.3; *cb* 44.5, 48.2; *n* 14.2, 15.8, *pl* 27.7, 30.7; *mtr* 10.3, 10.5; *b* 10.1, 10.3; *d* 15.0, 17.6. 2 ♀ : *on* 46.3, 48.1; *cb* 51.1, 52.7; *n* 16.0, 16.2; *pl* 32.6, 33.1; *mtr* 10.0(2); *b* 11.0, 11.2; *d* 19.1, 19.5.

Diagnosis : Condylobasal length less than 55 mm; diastema more than 40% of occipitonasal length; colour chestnut bay or ashy brown.

Distribution : India : Meghalaya : East Garo Hills district, East Khasi Hills district, Jaintia Hills district; Arunachal Pradesh; Assam; Nagaland; West Bengal. Nepal, Myanmar.

Family MURIDAE

In Meghalaya, the family Muridae is represented by to seven genera.

Key to the genera of the family MURIDAE

1. Postero-internal cusp of upper molars present 2
   Postero-internal cusp of upper molars absent 3
2. Tail non-prehensile; mammae 4 in number ..... ***Chiropodomys***
   Tail prehensile; mammae 8 in number ..... ***Micromys***
3. Hallux opposable; hallux and fifth toe having flat nail; coat silky ..... ***Vandeleuria***
   Hallux not opposable; hallux and fifth toe provided with claw 4
4. Size large; coat harsh; condylobasal lingth exceeds or equal to occipitonasal length; upper incisors prodont; anterior palatine foramina more than 7 mm in length and extended between maxillary tooth-row ..... ***Bandicota***

   Size smaller; condylobasal length less than occipitonasal length; upper incisors opisthodont or orthodont 5

5. First upper molar more than half the length of cheek tooth-row and its antero-internal cusp distorted inwards to reach the level of second lamina; third molar extremely reduced ..... ***Mus***

   First upper molar less than half the length of cheek tooth-row and its antero-internal cusp not distorted inwards to reach the second lamina; third molar not so reduced..... 6

6. Palate short, less than one-half of occipitonasal length; anterior palatine foramina less than one-fifth of occipitonasal length ..... ***Niviventer***

   Palate long; more than one-half of occipitonasal length; bulla more than 15% of occipitonasal length..... ***Rattus***

Genus ***Chiropodomys*** Peters, 1868

The genus *Chiropodomys* is represented in Meghalaya by one species and subspecies.

120. ***Chiropodomys gliroides gliroides*** (Blyth)

1856. *Mus gliroides* Blyth, *J. Asiat. Soc. Beng.*, 24 : 721 (Cherra Punji = Cherra Punji, East Khasi Hills district, Meghalaya, India).

Common name : Pencil-tailed Tree Mouse (Eng.).

Material examined : East Khasi Hills district : 1 ♂ Charra Punji, coll. J. H. Bourne, 12. vii. 1871.

Measurements : None.

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district; Assam. Myanmar, southern China, Vietnam, Thailand, Malaya Peninsula.

Genus ***Vandeleuria*** Gray, 1942

The genus *Vandeleuria* is represented in Meghalaya by one species and subspecies.

121. ***Vandeleuria oleracea dumeticola*** (Hodgson)

1845. *Mus dumeticola* Hodgson, *Ann. Mag. nat. Hist.*, 15 : 268 (Nepal).

Common names : Palm Mouse, Indian Long-tailed Tree Mouse (Eng.)

Material examined : Jaintia Hills district : 1 ♀, Shangpung (*c* 1, 219 m), coll. H. W. Wells, 10.viii. 1920.

Measurements : External : 1 ♀ : HB 70.0; Tl 100.0;.Hf 17.0; E 12.0. Cranial : 1 ♀ : *on* 20.1; *n* 5.9; *pl* 9.7; *mtr* 3.0; *b* 2.4; *apf* 3.3; *d* 5.0.

Diagnosis : Occipitonasal length less than 23.0 mm; tail over 150% of head and body length; colour bright red on back.

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district; Arunachal

Pradesh; Assam; Bihar; Manipur; Nagaland; Orissa; Sikkim; Uttar Pradesh; West Bengal. Nepal, Myanmar.

Genus ***Micromys*** Dehne, 1841

The genus *Micromys* is represented in Meghalaya by one species and subspecies.

122. ***Micromys minutes erythrotis*** (Blyth)

1855. *Mus erythrotis* Blyth, *J. Asiat. Soc. Beng.*, 24 : 721 (Chera Punji, Khasi Hills = Cherra Punji, East Khasi Hills district, Meghalaya, India).

Common name : Harvest Mouse (Eng.).

Material examined : East Khasi Hills district : 1 ♀ 3 Juv., Cherra Punji, coll. J.H. Bourne, 1871; 1 Juv., Cherra Punji, coll. F. Skipwith, 1855 (Holotype).

Measurements : None.

Distribution : India : Meghalaya : East Khasi Hills district; Assam. Myanmar, China, Vietnam.

Genus ***Rattus*** Fischer, 1803

Five species of the genus *Rathus* occurs in Meghalaya.

Key to the species of the genus ***Rattus***.

1. Small-sized, head and body length approximately ranges between 170 and 190 mm.....2
   Large-sized, head and body length approprimately ranges between 230 and 250 mm 3
2. Nasals long, usually exceeding 38% of occipitonasal length..... *R nitidus*
   Nasals short, usually less than 38% of occipitonasal length..... *R. rattus*
3. Fur shaggy; tail shorter than head and body length, vaguely white underneath.....*R. norvegicus*
   Fur moderately soft; tail usually longer than head and body length, not very well haired ....*R. bowersi*

Rattus rattus Linnaeus

Rattus rattus is represented in Meghalaya by three subspecies. Commonly found in houses, fields, forests and other habitats.

Key to the subspecies of ***Rattus rattus***

1. Underparts of body dull or dark 2
   Underparts of body white or dirty white; maxillary tooth-row more than 6.6 mm or more than 16% of occipitonasal length..... *R. r. brunneusculus*
2. Maxillary tooth-row rarely reaches 6.6 mm in length ..... *R. r. rufescens*

Maxillary toothrow 6.6 mm or more than 16% of occipitonasal length ..... *R. r. tistae*

123. ***Rattus rattus rufescens*** (Gray)

1837. *Mus rufescens* Gray, *Ann. Mag. nat. Hist.*, 1 : 585 (Dharwar = Dharwad, Darwad district, Karnataka, India).

Common names : House Rat, Black Rat (Eng.).

Material examined : East Khasi Hills district : 1 Subad. ♂ 2 unsexed, Cherra Punji, coll. J. H. Borune, 15. xi. 1883. 1 ♀, Khasi Hills, coll. H. H. Godwin-Austen, 12. xi. 1883.

Measurements : Cranial : 1 Subad. ♂ : *on* 35.7; *n* 12.3; *pl* 17.6; *mtr* 6.2; *b* 6.9; *apf* 5.8; *d* 8.9.

Distribution : India : Meghalaya : East Khasi Hills district; widely distributed throughout India. Pakistan, Thailand, Malaysia.

124. ***Rattus rattus brunneusculus*** (Hodgson)

1845. *Mus brunneusculus* Hodgson, *Ann. Mag. nat. Hist.*, 15 : 267 (Nepal).

Common names : House Rat, Black Rat (Eng.)

Material examined : West Garo Hills district : 1 ♂ Tura (*c* 1,219 m), coll. H. W. Wells, 29. ii. 1920. East Khasi Hills district : 1 ♂ Cherra Punji (*c* 1,417 m), coll. H. W. Wells, 15. iv. 1920; 1 ♀, Nongpoh (*c* 762 m), coll. H. L. Hiteshi, 3. vi. 1949. Jaintia Hills district : 1 ♂, Jowai (*c* 1,372 m); coll. H. W. Wells, 19. viii. 1920; 1 ♀, Shangpung (*c* 1,219 m), coll. H. W. Wells, 18. ii. 1920; 1 ♀ Rangapani (*c* 122 m), coll. H. W. Wells, 18. ii. 1920. Garo Hills : 1 ♀ Duragiri (*c* 914 m), coll. H. W. Wells, 19. iii. 1920.

Measurements : External : 2 ♂ : HB 170.0, 175.0; Tl 175.0, 200.0; Hf 30.0, 31.0; E 21.0, 24.0. 4 ♀ : HB 142.0 188.0(162.0); Tl 150.0 228.0(195.0); Hf 29.0 31.0(30.0); E 15.0 25.0(20.0). Cranial : 2 ♂ : *on* 40.7, 43.4; *n* 14.4, 15.8; *pl* 21.9, 23.3; *mtr* 7.22; *b* 7.0, 7.1; 11.3, 11.8; *apf* 6.9, 7.0. 2 ♀ : *on* 37.9, 43.0; *n* 14.1, 15.0; *pl* 20.6, 24.0; *mtr* 7.0, 7.4; *b* 7.0(2); *d* 9.9, 12.0; *apf* 6.6, 7.4.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, West Khasi Hills district, Ri-Bhoi district, East Khasi Hills district, Jaintia Hills district; Arunachal Pradesh; Assam; Jammu & Kashmir; Manipur; Nagaland; Sikkim; West Bengal. Nepal, Bhutan.

125. ***Rattus rattus tistae*** Hinton

1918. *Rattus rattus tistae* Hinton, *J. Bombay nat. Hist. Soc.*, 26 : 68 (Pashok, Darjiling district, West Bengal, India).

Common names : House Rats, Black Rat (Eng.).

Material examined : East Khasi Hills district : 1 ♂, 3 ♀, Shillong, coll. J. K. Sen, A. K. Mandal, 10. ii. 1961, 16, 17. vii. 1964; 2 ♂ Burnihat (*c* 62 m), coll. H. L. Hiteshi, 25. v. 1949. Ri-Bhoi district : 2 ♂ Nongpoh (*c* 519 m), coll. H. L. Hiteshi, 11, 12. v. 1949. Jaintia Hills district : 1 ♂, Khonshnong (*c* 914 m), coll. H. W. Wells, 28. vii. 1920; 1 ♀, Jowai (*c* 1,372 m), coll. H. W. Wells, 1. vii. 1920.

Measurements : External : 4 ♂ : HB 132.0 - 190.0(154.0); Tl 140.0 190.0(160.0); Hf 30.0 34.0(33.0); E 18.0 21.5(20.0). 3 ♀ : HB 147.0 158.0(152.0); Tl 148.0 157.0(152.0); Hf 29.0 30.0(29.0); E 19.0 20.0(19.0). Cranial : 2 ♂ : *on* 40.5, 40.7; *n* 14.7, 15.7; *pl* 21.8, 21.8; *mtr* 6.5, 6.8; *b* 6.5, 7.2; *d* 10.9, 11.1; *apf* 7.8, 8.0.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, Ri-Bhoi district, East Khasi Hills district, Jaintia Hills district; Arunachal Pradesh; Assam; Manipur; Nagaland; Sikkim; West Bengal. Bhutan.

126. ***Rattus nitidus nitidus*** (Hodgson)

1845. *Mus nitidus* Hodgson, *Ann. Mag. nat. Hist.*, 15 : 267 (Nepal).

Common name : Himalayan Rat (Eng.).

Material examined : Ri-Bhoi district : 6 ♂ Nongpoh, coll. H. L. Hiteshi, 15. v. 1949 (Holotype and paratypes of *Mus guhai* Nath). East Khasi Hills district : 1 ♀, Barabazar, Shillong, coll. Khasi Bahadur, 2. ii. 1961; 2 ♂, 1 ♀, Laitumkhrah, Shillong, coll. E. D. Albinus, 30. i. 1961, 3. ii. 1961, 10. x. 1969. Jaintia Hills district : 2 ♀ Jowai (*c* 1,372 m), coll. H.W. Wells, 3. vii. 1920 16. viii. 1920; 1 ♂ 1 ♀, Shangpung (*c* 1,219 m), coll. H. W. Wells, 7, 10. viii. 1920; 1 ♀ Konshnong (*c* 914 m), coll. H. W. Wells, 29. vii. 1920.

Measurements : External : 3 ♂ : HB 168.0 192.0(177.0); Tl 154.0 169.0(159.0); Hf 34.0 36.0(35.0); E 16.0 20.0(18.0). 3 ♀ : HB 175.0 180.0(178.0); Tl 142.0 163.0(150.0); Hf 32.0 34.5(33.0); E 15.0 22.0(18.0). Cranial : 2 ♂ : *on* 39.3, 40.8; *n* 15.1, 16.0; *pl* 20.9, 21.4; *mtr* 6.1, 6.7; *b* 6.1, 6.6; *apf* 6.8, 7.6; *d* 10.4, 11.0. 1 ♀ : *on* 38.8; *n* 14.3; *pl* 20.3; *mtr* 6.3; *b* 6.3; *apf* 6.7; *d* 10.0.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, South Garo Hills district, Ri-Bhoi district, East Khasi Hills district, Jaintia Hills district; Arunachal Pradesh; Assam; Sikkim; Uttar Pradesh; West Bengal. Bhutan, Nepal, China.

127. ***Rattus norvegicus*** (Berkenhout)

1769. *Mus norvegicus* Berkenhout, *Outlines nat. Hist. Great Britain and Ireland,* 1 (N.V.) : 5 (Great Britain).

Common names : Norway Rat, Brown Rat (Eng.).

Material examined : East Khasi Hills district : 1 unsexed, Shillong Research Complex, Shillong, Donor I.C.A.R., —.

Measurements : Cranial : 1 unsexed : *cb* 48.7; *pl* 27.1; *mtr* 7.0; *b* 7.7; *apf* 8.3; *d* 14.3; *iw* 7.4.

Diagnosis : Parietal ridges straight, parallel, close together on top of cranium.

Distribution : India : Meghalaya : East Khasi Hills district; Jammu & Kashmir; West Bengal. Siberia and Southern China, introduced worldwide, particularly in large cities and ports.

128. ***Rattus*** ? ***bowersi mackenziei*** (Thomas)

1916. *Epimys mackenziei* Thomas, *J. Bombay nat. Hist. Soc.*, 24 : 410 (Haingyan, 50 miles W of Kindat, Chin Hills, Burma = Myanmar).

Common name : Bower's Rat (Eng.).

Material examined : East Khasi Hills district : 1 ♀, 1 unsexed, Kench's Terrace, Shillong, coll. P. B. Thapa, A. K. Mandal, 15. iv. 1965, 16. v. 1965; 1 unsexed, Upper Shillong, coll. M. R. Rynth, 23. xii. 1960; 1 unsexed, Laban, Shillong, coll. A. K. Mandal, 3. iii. 1964; 1 ♂, Shillong, coll. A. K. Mandal, 26. iv. 1965; 1 unsexed, Risa Colony, Shillong, coll. G. C. Bhattacharyya, 25. v. 1978.

Measurements : External : 1 ♂ : HB 164.0; Tl 160.0; Hf 35.0; E 20.0. Cranial : 1 ♂, 1 unsexed : *on* 41.4, 42.0; *n* 15.7, 16.3; *pl* 22.7, 22.8; *mtr* 6.4, 6.5; *b* 6.2(2), *apf* 7.2, 7.1; *d* 11.7, 11.8. 1 ♀ : *on* 48.9; *n* 18.9; *pl* 26.3; *mtr* 7.1; *b* 7.2; *apf* 8.3; *d* 13.8.

Diagnosis : Giant size; hind foot about 50 mm in length; recurved incisors; small bullae; 2 + 2 mammae.

Distribution : India : Meghalaya : East Khasi Hills district; Assam; Manipur; Nagaland. Myanmar.

129. ***Rattus sabanus garonum*** Thomas

1921. *Rattus listeri garonum* Thomas, *J. Bombay nat. Hist. Soc.*, 28, : 27 (Tura,*c* 3170 m. West Garo Hills district, Meghalaya, India).

Common name : Noisy Rat (Eng.).

Material examined : West Garo Hills district : 1 ♂, Tura (*c* 426 m), coll. H. W. Wells, 24. ii. 1920.

Measurements : External : 1 ♂ : HB 222.0; Hf 46.0; E 29.0. Cranial : 1 ♂ : *on* 53.8; *n* 20.4; *pl* 26.3; *mtr.* 9.0; *b* 5.5; *apf* 7.8; *d* 14.0

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, Ri-Bhoi district, Jaintia Hills district; Assam.

Genus ***Niviventer*** Marshall, 1976

Two species of the genus *Niviventer* occur in Meghalaya. Tail in this genus is generally bicoloured; underside normally white or dirty white.

Key to the species of the genus ***Niviventer***

Tail not much elongated, less than 140% of head and body length ..... *N. niviventer*

Tail clongated, approximately 140% of head and body length ..... *N. fulvescens*

130. *Niviventer niviventer mentosus* (Thomas)

1916. *Rattus mentosus* Thomas, *J. Bombay nat. Hist. Soc.*, 24 : 643 (H'kamti, *c* 152 m, Upper Chindwin, Burma = Myanmar).

Common name : White-bellied Rat (Eng.).

Material examined : Ri-Bhoi district : 1 ♀, Barapani (*c* 976 m), coll. H. L. Hiteshi, 22. v. 1949. East Khasi Hills district : 2 ♂ Shillong Peak, coll. J. K. Sen, C. B. Srivastava, 10. ii. 1961, 28. vi. 1961; 3 ♂ 2 ♀, Upper Shillong, coll. J. K. Sen, 25. v. 1961, 29. vii. 1961, 1. xi. 1961.

Measurements : External : 4 ♂ : HB 163.0 179.0(171.0); TI 184.5 207.0(195.1); Hf 31.0 33.0(31.6); E 20.0 25.0(21.6). 1 ♀, 2 ♂ : *on* 39.5, 39.9; *n* 15.1, 15.5; *pl* 18.4, 19.1; *mtr* 6.1; *b* 5.0, 5.2; *apf* 6.5, 6.7; *d* 9.8, 9.9. 1 ♀ : *on* 38.2; *n* 13.5; *pl* 18.0; *mtr* 6.0; *b* 5.3; *apf* 6.4 *d* 10.0.

Distribution : India : Meghalaya : Ri-Bhoi district, East Khasi Hills district; Arunachal Pradesh; Assam. Myanmar.

131. *Niviventer fulvescens fulvescens* (Gray)

1847. *Mus fulvesceus* Gray, *Cat. Hodgson Colln Br. Mus.* : 18 (Nepal).

Common name : Chestnut Rat (Eng.).

Material examined : West Garo Hills district : 1 ♂ 3 ♀, Tura (c 440 m), coll. H. W. Wells, 25. ii. 1920, 25. iii. 1920. East Khasi Hills district : 1 ♀, Mawphlang (c 1,676 m), coll. H. W. Wells, 10. iv. 1920; 1 ♂ Monepring (c 732 m), Cherra Punji, coll. H. W. Wells, 23. iv. 1920; 1 ♂ 1 ♀, Laitkynsew (c 1,067 m), coll. H. W. Wells, 27. iv. 1920. Jaintia Hills district : 1 ♂ 1 ♀, Jowai (c 1,372 m), coll. H. W. Wells, 15, 29, vi. 1920; 1 ♂ 1 ♀ Shangpung (c 1,219 m), coll. H. W. Wells, 10. vii. 1920, 5. viii. 1920; 1 unsexed, Khonshnong (c 914 m), coll. H. W. Wells, 29. vii. 1920.

Measurements : External : 3 ♂ : HB 143.0 146.0(144.6); TI 172.0 203.0(191.6); HF 28.0 30.0(28.6); E 21.0 22.0(21.3). 4 ♀ : HB 133.0 148.0(139.5); TI 20.0 23.0(20.7). Cranial : 5 ♂ : *on* 34.3 37.2(36.1); *n* 12.7 13.3(12.9); *pl* 16.5 18.2(17.4); *mtr* 5.6 6.0(5.8); *b* 4.8 5.5(5.0); *apf* 4.9 6.3(5.8); *d* 8.8 - 10.0(9.2). 7 ♀ : *on* 34.7 38.0(36.2); *n* 12.0 14.2(12.9); *pl* 116.6 18.2(17.3); *mt* 5.5 5.9(5.7); *b* 4.7 5.1(4.9); *apf* 4.9 6.3(5.6); *d* 8.7 10.0(9.2).

Distribution : India : Meghalaya : West Garo Hills district, Ri-Bhoi district, East Khasi Hills district, Jaintia Hills district; Arunachal Pradesh; Assam; Nagaland; Sikkim; West Bengal. Nepal, Myanmar.

Genus *Mus* Linnaeus, 1758

Four species of the genus *Mus* occur in Meghalaya.

Key to the species of the genus *Mus*

1. Anterior palatine foramina short, less than one-fifth of occipitonasal length and not extending between maxillary tooth-rows ..... *M. pahari*

   Anterior palatine foramina long, more than one-fifth of occipitonasal length and extending posteriorly between maxillary tooth-rows 2

2. Tail unicoloured and longer than head and body ..... *M. musculus*

   Tail bicoloured (pale below) and equal to or shorter than head and body 3

3. Larger in size, occipitonasal length more than 20 mm ..... *M. cevicolor*

   Smaller in size, occipitonasal length less than 20 mm ..... *M. booduga*

Mus musculus Linnaeus

Two subspecies of *Mus musculus* occur in Meghalaya.

Key to the subspecies of ***Mus musculus***

Undersurface of body light grey ..... *M. m. homorus*

Undersurface of body dark brown ..... *M. m. castaneus*

132. ***Mus musculus castaneous*** Waterhouse

1843. *Mus castaneus* Waterhouse, *Ann. Mag. nat. Hist.*, 12 : 134 (Philippine Islands).

Common name : House Mouse (Eng.).

Material examined : East Khasi Hills district : 3 unsexed, Shillong, coll. J. K. Sen, K. Rai, S. Biswas, 24. viii. 1961, 4. ix. 1961, 7. vii. 1964. Jaintia Hills district : 1 ♂, 2 ♀ Shangpung (*c* 1,219 m), coll. H. W. Wells, 11. vii. 1920, 5. viii. 1920.

Measurements : External : 1 ♂ : HB 61.0; TI 83.0; Hf 15.0; E 12.0. 2 ♀ : HB 63.0(2); TI 76.0(2); Hf 16.0(2); E 12.0 (2). 1 unsexed : HB 63.5; TI 78.5; Hf 16.5; E 11.0. Cranial : 1 ♂ : *on* 19.7; *n* 6.3; *pl* 9.7; *mtr* 3.3; *b* 3.2; *apf* 3.7; *d* 4.9. 2 ♀ : *on* 17.8, 18.3; *n* 5.8, 5.9; *pl* 8.9, 9.0; *mtr* 3.1, 3.2; *b* 3.4(2); *apf* 3.7, 3.8; *d* 4.2, 4.4.

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district; Andhra Pradesh; Assam; Bihar; Delhi; Gujarat; Jammu & Kashmir; Karnataka; Kerala; Orissa; West Bengal. Africa, Sri Lanka, Myanmar, China, Thailand, Malaysia, Philippines, New Guinea.

133. ***Mus musculus homourus*** Hodgson

1845. *Mus homourus* Hodgson, *Ann. Mag. nat. Hist.*, 15 : 268 (Nepal).

Common name : Southern Himalayan House Mouse (Eng.).

Material examined : Nil

Measurements : None.

Distribution : India : Meghalaya : Garo Hills, Khasi and Jaintia Hills; Assam; Himachal Pradesh; Jammu & Kashmir; Manipur; Nagaland; Sikkim; Tamil Nadu; Uttar Pradesh; West Bengal. Nepal, Myanmar, China, Taiwan, Vietnam, Java.

134. ***Mus booduga booduga*** (Gray)

1837. *Leggada booduga* Gray, *Mag. nat. Hist.*, 1 : 586 (South Mahratta Country = Dharwad district, Karnataka, India).

Common name : Little Indian Field Mouse (Eng.).

Material examined : East Garo Hills district : 1 ♀, Rongrengiri, coll. H. Khajuria, 9. ii. 1957; 2 unsexed, Garo Hills, coll. N. Belletty, 1870.

Measurements : Cranial : 1 ♀ : *on* 19.6; *n* 7.1; *pl* 10.0; *mtr* 3.1; *b* 3.1; *apf* 3.9; *d* 5.4.

Distribution : India : Meghalaya : West Garo Hills district, East Garo Hills district, East Khasi Hills district, Jaintia Hills district; Arunachal Pradesh; Assam; Bihar; Goa; Gujarat; Himachal Pradesh; Jammu & Kashmir; Karnataka; Kerala; Madhya Pradesh; Maharashtra; Orissa; Tamil Nadu; Tripura; West Bengal. Bangladesh.

Remarks : The female specimen foetuses.

135. ***Mus cervicolor cervicolor*** Hodgson

1845. *Mus cervicolor* Hodgson, *Ann. Mag. nat. Hist.*, 15 : 268 (Nepal).

Common name : Fawn-coloured Mouse (Eng.).

Material examined : East Khasi Hills district : 3 unsexed, Charra Punji, coll. F. Skipwith, 1855 (syntypes of *Mus cunicularis* Blyth, 1856).

Measurements : None.

Distribution : India : Meghalaya : Garo Hills, East Khasi Hills district; West Bengal. Nepal, Myanmar.

136. ***Mus cervicolor nagarum*** (Thomas)

1921. *Leggada nagarum* Thomas, *J. Bombay nat. Hist. Soc.*, 27 : 597 (Gologhat, Naga Hills, Nagaland, India).

Common name : Fown-coloured Mouse (Eng.).

Material examined : Jaintia Hills district : 1 ♂ 3 ♀ : Shangpung (*c* 1,219 m), coll. H. W. Wells; 4 13. viii. 1920 coll. H.W. Wells; 2♂ 2 ♀ : Khoushnong(914 m), coll. H.W. Wells, 14, 28. vii. 1920.

Material examined : External : 3 ♂ : HB 66.0 68.0(67.3); Tl 62.0 -68.0(64.3); Hf 14.0 15.0 (14.3); E 11.0 12.0(11.6). 5 ♀ : HB 60.0 73.0(65.2); Tl 59.0 78.0(64.8); Hf 14.0 17.0 (14.8) E 12.0 14.0(12.4). Cranial : 1 ♂ : *on* 18.3; *n* 6.0; *pd* 9.2; *mtr* 2.8; *b* 4.0; *apf* 3.9, 4.8. 2 ♀ : *on* 18.1(2); *n* 6.2, 6.3, *pl* 9.3, 9.5; *mtr* 2.8, 2.9; *bl* 3.5, 3.8; *apf* 3.7, 3.9; *d* 4.9, 5.0.

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district; Arunachal Pradesh; Assam.

137. ***Mus pahari jacksoniae*** (Thomas)

1921 *Leggada jacksoniae* Thomas, *J. Bombay nat. Hist. Soc.*, 27 : 596 (Laitkynsao = Laitkynsew, East Khasi Hills district, Meghalaya, India).

Common name : Sikkim Mouse (Eng.).

Material examined : Nil.

Measurements : None.

Distribution : India : Meghalaya : West Garo Hills district; East Khasi Hills district, Jaintia, Hills district; Arunachal Pradesh; Assam; Nagaland. Northern Myanmar.

Genus ***Bandicota*** Gray, 1873

Two species of the genus *Bandicota* occur in Meghalaya.

Key to the specis of the genus ***Bandicota***

Size large, head and body length more than 220 mm; anterior palatal foramina equally broad at both ends; nasals more than one-third of occipitonasal length ..... *B. indica*

Size small, head and body length less than 220 mm; anterior palatal foramina narrower posteriorly; nasals short, less than one-third of occipitonasal length ..... *B. bengalensis*

138. ***Bandicota bengalensis bengalensis*** (Gray)

1835. *Arvicola bengalensis* Gray, *Ill Indian Zool.*, 2 : pl. 21 (Bengal).

Common name : Lesser Bandicoot Rat (Eng.).

Material examined : East Khasi Hills district : 6 ♂ 3 ♀, Rilbong, Shillong, Purchased, 31. v. 1959, 12. vi. 1959; 4 ♂ 2 ♀, Barabazar, Shillong, coll. Chandan Singh, Kripadhan Rai, 10. iv. 1961, 26. ix. 1961; 1 ♂, Malki, Shillong, coll. R. L. Fernandez, 20. vi. 1959; 1 ♂ Kench's Terrace, Shillong, Purchased, 29. v. 1959.

Measurements : External : 6 ♂ : HB 175.0 195.0(188.0); Tl 120.0. – 161.0(143.3); Hf 29.0 34.5(32.3); E 17.0 25.0(21.1). 6 ♀ : HB 181.0 192.0(185.8); Tl 140.0 - 151.0(147.2); Hf 29.0 35.0(32.5); E19.0 24.0(21.1). Cranial : 4 ♂ : *on* 37.8 42.3(39.9); *n* 11.8 14.0(12.9); *pl* 22.9 25.6(24.1); *mtr* 7.1 7.3 (7.2); b 8.3 9.3(8.7); *apf* 6.5 8.3(7.7); *d* 11.9 - 14.2(13.0). 5 ♀ : *on* 38.1 40.2(38.9; *n* 12.1 13.4(12.5) ; *pl* 23.0 24.1(23.4); *mtr* 6.8 7.2); *b* 8.1 9.3(8.6); *apf* 7.3 7.9(7.7); *d* 12.2 13.4(12.7).

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district; throughout India. Pakistan, Sri Lanka, Nepal, Bhuta, Bangladesh, Myanmar.

139. ***Bandicota indica nemorivaga*** (Hodgson)

1836. *Mus (Rattus) nemorivagus* Hodgson, *J. Asiat. Soc. Beng.*, 5 : 234 (Nepal).

Common name : Large Bandicoot Rat (Eng.).

Material examined : East Khasi Hills district : 1 ♀. Shillong, coll. S. K. Gangwar, 8. v. 1989.

Measurements : External : None. Cranial : 1 ♀ : *on* 55.0; *cb* 55.7; *n* 16.5; *pl* 33.3; *mtr* 10.2; *b* 9.8; *apf* 9.3; *d* 17.5.

Distribution : India : Meghalaya : East Khasi Hills district, Jaintia Hills district; Assam; Bihar; Manipur; Sikkim; West Bengal. Nepal, Bangladesh, Thailand, Taiwan.

SUMMARY

An account of the mammalian fauna of Meghalaya, based on the specimens present in the Zoological Survey of India as also on published literature, is provided. A total of 139 species and subspecies belonging to 83 genera, 27 families and 10 orders have been reported.

Keys and/or diagnostic characters for the identification of all the taxa have been given.

Detailed district-wise distribution in Meghalaya, along with the distributional range in India and outside for every taxon has been provided.

Taxonomic comments have been made with respect to *Hipposideros lankadiva* and *Hipposideros pomona gentilis. Pteropus giganteus leucocephalus* and *Scotomanes ornatus imbrensis* have been synonymised with respective nominate subspecies, while *Nycticejus emarginatus* has been synonymised with *Scotomanes ornatus. Harpiocephalus mordax* has been accepted as a distinct species and reported for the first time for India, from Meghalaya, West Bengal and Sikkim.

Pteropus giganteus giganteus, Macroglossus sobrinus sobrinus, Megaderma lyra lyra, Myotis horsfieldi, Pipistrellus circumdatus, Tylonycteris pachypus fulvida, Scotophilus heathi heathi and *Miniopterus schreibersi fuliginosus* have been reported for the first time from Meghalaya. Besides, a number of species of bats have also been reported for the first time from some other states of India to complete their so far imperfectly known distributional range.

Retalive abundance of a number of large mammals and several species of small mammals has also been included.

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AVES

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INTRODUCTION

Extensive work has been done on the taxonomy of birds pertaining to Meghalaya, erstwhile Khasi and Jaintia Hills and Garo Hills districts of Assam State. The earliest record from this area is that of Blyth (1845-1865) who described some new birds from this region and included some data in his catalogue. Subsequently, Godwin-Austen (1870-1882) published a series of papers, including some new birds from this region. Most important work was done by Hume (1888). He reported 276 species of birds from this region. The other significant contribution is that of Baker (1907-1925). Besides these, the work of Gould (1838-1874), Sharpe (1883), Walden (1871, 1872) and Harington (1914) etc., are worth mentioning. In recent years Koelz (1952-1954) contributed further towards the avifauna of Meghalaya. The compiled work of Ali and Ripley (1969-1974) and Ripley (1982) help to get an overall picture of the avifauna of Meghalaya.

This paper is mainly based on the collections of birds made by different survey parties of the Zoological Survey of India under the leadership of the following persons during the years 1949-1988.

(i)	B. Nath	May-July, 1949	Khasi, Jaintia and Garo Hills
(ii)	H. Khajuria	Nov. 1956-Feb. 1957	Khasi and Garo Hills
		May 1957	Khasi Hills
(iii)	A.S. Rajagopal	Feb.1965	Garo Hills
(iv)	G.M. Yazdani	Feb. 1971	Garo Hills
		May 1978	Khasi Hills
(v)	R.S. Pillai	May 1972	Khasi Hills
(vi)	S. Biswas	April-May 1973	Garo Hills
		Nov. 1973	Garo Hills
		Feb. 1975	Garo Hills
(vii)	T.D. Soota	January-February 1974	Khasi Hills
(viii)	A.K. Ghosh	January, 1976	Jaintia Hills

(ix)	R.K. Ghosh	July, 1988	Garo Hills
(x)	N.Majumdar	Nov-Dec., 1988	Garo Hills
(xi)	A.K. Mondal	Dec. 1988	Jaintia & Garo Hills

Besides, stray collections present in the Z.S.I., Calcutta and the Eastern Regional Station, Z.S.I., Shillong, as well as data published in literature have also been included.

For wing, tail and bill measurements, the standard methods were followed (Ali and Ripley, 1968). All the measurements are expressed in millimeters. The range of measurements are given, along with the arithmetical mean in parenthesis.

The sex was determined from the actual examination of gonads.

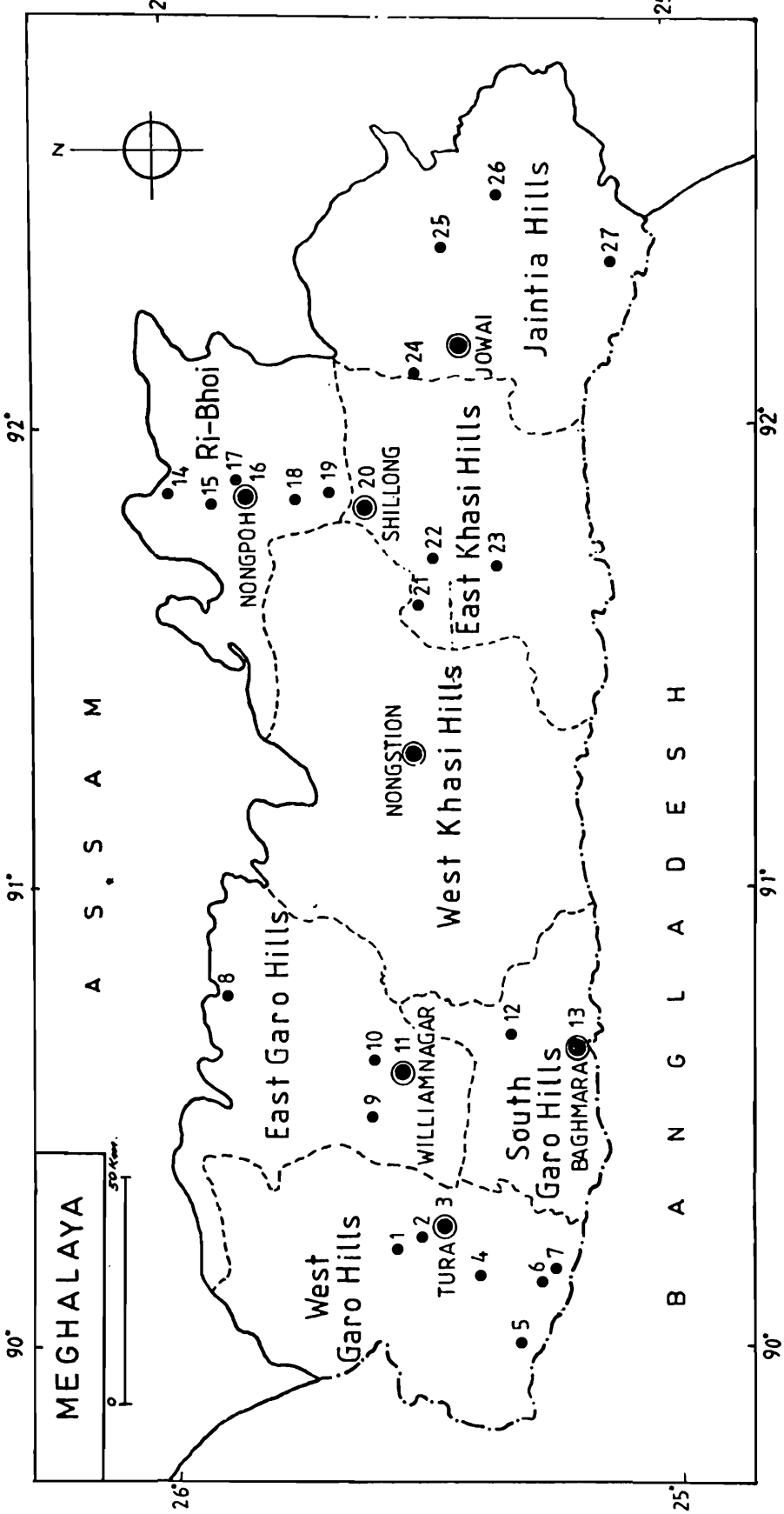
Local names were gathered from various sources in the field.

Ali and Ripley's (1968-1974) classification of taxa has been adopted in the present account. The keys to the families and the genera given here deal with those occuring in Meghalaya only. Total number of families, genera and species and subspecies known from India are 78, 405 and 2,110 respectively (Majumdar *et. al*,1991). of which 57 families, 232 genera, 540 species and subspecies occur in Meghalaya.

The important places of collection have only been plotted in the map.

LIST OF IMPORTANT PLACES OF COLLECTION AND OBSERVATION IN MEGHALAYA STATE FOR BIRDS

(1)	Tura	(2)	Selbergiri	(3)	Nokrek
(4)	Kherapara	(5)	Kylaspeak	(6)	Dalu
(7)	Barangapara	(8)	Damra	(9)	Rongrenggiri
(10)	Songsak	(11)	Williamnagar	(12)	Siju
(13)	Baghmara	(14)	Byrnihat	(15)	Umsa
(16)	Nongpoh	(17)	Nongkhari	(18)	Umran
(19)	Barapani	(20)	Shillong	(21)	Nongrang
(22)	Mawphlang	(23)	Cherrapunjee	(24)	Thadleskein
(25)	Shangpung	(26)	Garampani	(27)	Umkiang



Text - Fig. 1 Map of Meghalaya, showing the important places of collection and observation for birds. The Arabic numerals against the localities correspond to the numbers given in the text under the collecting localities.

SYSTEMATIC LIST OF BIRDS FROM MEGHALAYA STATE AS REPORTED IN THIS PAPER

Order PODICIPEDIFORMES

Family PODICIPEDIDAE

1. *Podiceps ruficollis capensis* Salvadori

Order PELICANIFORMES

Family PHALACROCORACIDAE

2. *Phalacrocorax carbo sinensis* (Shaw)
3. *Phalacrocorax niger* (Vieillot)
4. *Anhinga rufa melanogaster* Pennant

Order CICONIIFORMES

Family ARDEIDAE

5. *Ardea cinerea rectirostris* Gould
6. *Ardea purpurea manilensis* Meyen
7. *Ardea alba modesta* J.E. Gray
8. *Ardeola striatus chloriceps* (Bonaparte)
9. *Ardeola grayii grayii* (Sykes)
10. *Bubulcus ibis coromandus* (Boddaert)
11. *Egretta intermedia intermedia* (Wagler)
12. *Egretta garzetta garzetta* (Linnaeus)
13. *Nycticorax nycticorax nycticorax* (Linnaeus)
14. *Ixobrychus cinnamomeus* (Gmelin)
15. *Ixobrychus sinensis* (Gmelin)
16. *Ixobrychus flavicollis flavicollis* (Latham)

Family CICONIIDAE

17. *Mycteria leucocephala* (Pennant)
18. *Anastomus oscitans* (Boddaert)
19. *Ciconia episcopus episcopus* (Boddaert)

Family THRESKIORNITHIDAE

20. *Threskiornis aethiopica melanocephala* (Latham)
21. *Platalea leucorodia major* Temminck & Schlegel

Order ANSERIFORMES

Family ANATIDAE

22. *Anser anser rubrirostris* Swinhoe
23. *Dendrocygna javanica* (Horsfield)
24. *Anas acuta* Linnaeus
25. *Anas crecca crecca* Linnaeus
26. *Anas strepera strepera* Linnaeus
27. *Anas penelope* Linnaeus
28. *Anas clypeata* Linnaeus
29. *Aythya ferina* (Linnaeus)
30. *Nettapus coromandelianus coromandelianus* (Gmelin)
31. *Mergus merganser merganser* Linnaeus

Order FALCONIFORMES

Family ACCIPITRIDAE

32. *Elanus caeruleus vociferus* (Latham)
33. *Aviceda leuphotes leuphotes* (Dumont)
34. *Aviceda leuphotes syama* (Hodgson)
35. *Milvus migrans govinda* Sykes
36. *Mivus migrans lineatus* (Gray)
37. *Haliastur indus indus* (Boddaert)
38. *Accipiter gentilis schvedowi* (Menzbier)
39. *Accipiter badius dussumieri* (Temminck)
40. *Accipiter trivirgatus indicus* (Hodgson)
41. *Accipiter nisus nisasimilis* (Tickell)
42. *Accipiter nisus molaschistos* Hume
43. *Buteo buteo japonicus* (Temminck & Schlegel)
44. *Spizaetus cirrhatus limnacetus* (Horsfield)
45. *Aquila rapax nipalensis* Hodgson
46. *Aquila pomarina hastata* (Lesson)
47. *Sarcogyps calvus* (Scopoli)
48. *Circus macrourus* (S.G. Gmelin)
49. *Circus aeruginosus aeruginosus* (Linnaeus)

50. *Spilornis cheela burmanicus* Swann
51. *Pandion haliaetus haliaetus* (Linnaeus)

Family FALCONIDAE

52. *Microhierax caerulescens caerulescens* (Linnaeus)
53. *Falco subbuteo centralasiae* (Buturlin)
54. *Falco tinnunculus tinnunculus* Linnaeus

Order GALLIFORMES

Family PHASIANIDAE

55. *Francolinus francolinus melanotus* Hume
56. *Francolinus gularis* (Temminck)
57. *Coturnix coturnix coturnix* (Linnaeus)
58. *Coturnix coromandelica* (Gmelin)
59. *Coturnix chinensis chinensis* (Linnaeus)
60. *Arborophila atrogularis* (Blyth)
61. *Bambusicola fytchil hopkinsoni* Godwin-Austen
62. *Lophura leucomelana lathami* (J.E. Gray)
63. *Gallus gallus murghi* Robinson & Kloss
63a. *Polyplectron bicalcarafum bakeri* (Lowe)
64. *Pavo cristatus* Linnaeus

Order GRUIFORMES

Family TURNICIDAE

65. *Turnix sylvatica dussumier* (Temminck)
66. *Turnix suscitator plumbipes* (Hodgson)

Family RALLIDAE

67. *Rallus striatus albiventer* Swainson
68. *Porzana pusilla pusilla* (Pallas)
69. *Amaurornis fusca bakeri* (Hartert)
70. *Amaurornis bicolor* (Walden)
71. *Amaurornis akool akool* (Sykes)
72. *Gallicrex cinerea cinerea* (Gmelin)
73. *Gallinula chloropus indica* Blyth
74. *Fulica atra atra* Linnaeus

Order CHARADRIIFORMES

Family JACANIDAE

75. *Hydrophasianus chirurgus* (Scopoli)

76. *Metopidius indicus* (Latham)

Family CHARDRIIDAE

Subfamily CHARADRIINAE

77. *Vanellus indicus indicus* (Boddaert)

78. *Vanellus spinosus duvancelii* (Lesson)

79. *Pluvialis dominica fulva* (Gmelin)

80. *Charadrius dubius curonicus* Gmelin

81. *Charadrius dubius jerdoni* (Legge)

Subfamily SCOLOPACINAE

82. *Tringa totanus totanus* (Linnaeus)

83. *Tringa stagnatilis* (Bechstein)

84. *Tringa nebularia* (Gunnerus)

85. *Tringa ochropus* Linnaeus

86. *Tringa glareola* Linnaeus

87. *Tringa hypoleucos hypoleucos* Linnaeus

88. *Gallinago solitaria solitaria* Hodgson

89. *Gallinago nemoricola* Hodgson

90. *Gallinago stenura* (Bonaparte)

91. *Gallinago gallinago gallinago* (Linnaeus)

92. *Gallinago minima* (Brunnich)

93. *Scolopax rusticola rusticola* Linnaaeus

94. *Calidris minuta* (Leisler)

95. *Calidris temminckii* (Leisler)

96. *Philomachus pugnax* (Linnaeus)

Family ROSTRATULIDAE

97. *Rostratula benghalensis benghalensis* (Linnaeus)

Family RECURVIROSTRIDAE

98. *Himantopus himantopus himantopus* (Linnaeus)

Family BURHINIDAE

99. *Burhinus oedicnemus indicus* (Salvadori)

Family GLAREOLIDAE

100. *Glareola pratincola maldivarum* J.R. Forster

Family LARIDAE

101. *Larus brunnicephalus* Jerdon
102. *Sterna aurantia* J.E. Gray
103. *Sterna hirundo tibetana* Saunders
104. *Sterna acuticauda* J.E. Gray

Order COLUMBIFORMES

Family COLUMBIDAE

105. *Treron sphenura sphenura* (Vigors)
106. *Treron curvirostra nipalensis* (Hodgson)
107. *Treron pompadora phayrei* (Blyth)
108. *Treron bicincta bicincta* (Jerdon)
109. *Treron phoenicoptera phoenicoptera* (Latham)
110. *Ducula aenea sylvatica* (Tickell)
111. *Ducula badia insignis* Hodgson
112. *Columba livia intermedia* Strickland
113. *Macropygia unchall tusila* (Blyth)
114. *Streptopelia orientalis agricola* (Tickell)
115. *Streptopelia decaocto decaocto* (Frivaldszky)
116. *Streptopelia transquebarica humilis* (Temminck)
117. *Streptopelia chinensis suratensis* (Gmelin)
118. *Streptopelia chinensis tigrina* (Temminck)
119. *Chalcophaps indica indica* (Linnaeus)

Order PSITTACIFORMES

Family PSITTACIDAE

120. *Psittacula eupatria avensis* (Kloss)
121. *Psittacula krameri borealis* (Neumann)
122. *Psittacula alexandri fasciata* (P.L.S. Muller)
123. *Psittacula cyanocephala bengalensis* (Forester)
124. *Psittacula himalayana himalayana* (Lesson)
125. *Psittacula finschii* (Hume)
126. *Loriculus vernalis* (Sparrman)

Order CUCULIFORMES

Family CUCULIDAE

127. *Clamator coromandus* (Linnaeus)
128. *Clamator jacobinus serratus* (Sparrman)
129. *Cuculus sparverioides sparverioides* Vigors
130. *Cuculus varius varius* Vahl
131. *Cuculus fugax nisicolor* Blyth
132. *Cuculus micropterus micropterus* Gould
133. *Cuculus canorus bakeri* Hartert
134. *Cuculus saturatus horsfieldi* Moore
135. *Cuculus poliocephalus poliocephalus* Latham
136. *Chalcites maculatus* (Gmelin)
137. *Surniculus lugubris dicruroides* (Hodgson)
138. *Eudynamys scolopacea scolopacea* (Linnaeus)
139. *Eudynamys scolopacea malayana* Cabanis & Heine
140. *Rhopodytes tristis tristis* (Lesson)
141. *Centropus sinensis intermedius* (Hume)
142. *Centropus toulou bengalensis* (Gmelin)

Order STRIGIFORMES

Family STRIGIDAE

Subfamily TYTONINAE

143. *Tyto capensis longimembris* (Jerdon)
144. *Phodilus badius saturatus* Robinson

Subfamily STRIGINAE

145. *Otus scops sunia* (Hodgson)
146. *Otus bakkamoena lettia* (Hodgson)
147. *Bubo bubo bengalensis* (Franklin)
148. *Bubo coromandus coromandus* (Latham)
149. *Bubo zeylonensis leschelault* (Temminck)
150. *Bubo flavipes* (Hodgson)
151. *Glaucidium brodiei brodiei* (Burton)
152. *Glaucidium cuculoides rufescens* Baker

153. *Ninox scutulata burmanica* Hume
154. *Athene brama indica* (Franklin)
155. *Strix leptogrammica newarensis* (Hodgson)
156. *Strix leptogrammica indranee* Sykes
157. *Asio flammeus flammeus* (Pontoppidan)

Order CAPRIMULGIFORMS

Family CAPRIMULGIDAE

158. *Caprimulgus indicus hazarae* Whistler & Kinnear
159. *Caprimulgus indicus jotaka* Temminck & Schlegel
160. *Caprimulgus macrurus albonotatus* Tickell
161. *Caprimulgus affinis monticola* Franklin

Order APODIFORMES

Family APODIDAE

Subfamily APODINAE

162. *Collocalia brevirostris brevirostris* (Horsfield)
163. *Chaetura (caudacuta) cochinchinensis* Oustalet
164. *Chaetura gigantea indica* Hume
165. *Apus pacificus leuconyx* (Blyth)
166. *Apus affinis subfurcatus* (Blyth)
167. *Cypsiurus parvus infumatus* (Sclater)

Subfamily HEMIPROCNINAE

168. *Hemiprocne longipennis coronata* (Tickell)

Order TROGONIFORMES

Family TROGONIDAE

169. *Harpactes erythrocephalus erythrocephalus* (Gould)

Order CORACIIFORMES

Family ALCEDINIDAE

170. *Ceryle rudis leucomelanura* Reichenbach
171. *Alcedo hercules* Laubmann
172. *Alcedo atthis bengalensis* Gmelin
173. *Alcedo meninting coltarti* Baker
174. *Ceyx erithacus erithacus* (Linnaeus)

175. *Pelargopsis capensis capensis* (Linnaeus)

176. *Halcyon smyrnensis perpulehra* Madarasz

Family MEROPIDAE

177. *Merops leschenaulti leschenaulti* Vieillot

178. *Merops philippinus philippinus* Linnaeus

179. *Merops orientalis orientalis* Latham

180. *Merops orientalis birmanus* Neumann

181. *Nyctyornis athertoni athertoni* (Jardine & Selby)

Family CORACIIDAE

182. *Coracias benghalensis affinis* Horsfield

183. *Eurystomus orientalis cyanicollis* Vieillot

Family UPUPIDAE

184. *Upupa epops longirostris* Jerdon

Family BUCEROTIDAE

185. *Ptilolaemus tickelli austeni* (Jerdon)

186. *Aceros nipalensis* (Hodgson)

187. *Rhyticeros undulatus ticehursti* Deignan

188. *Anthracoceros malabaricus malabaricus* (Gmelin)

189. *Anthracoceros coronatus coronatus* (Boddaert)

Order PICIFORMES

Family CAPITONIDAE

190. *Megalaima virens marshallorum* Swinhoe

191. *Megalaima virens magnifica* Baker

192. *Megalaima lineata hodgsoni* Bonaparte

193. *Megalaima franklinii franklinii* (Blyth)

194. *Megalaima asiatica asiatica* (Latham)

195. *Megalaima australis cyanotis* (Blyth)

196. *Megalaima hemacephala indica* (Latham)

Family PICIDAE

Subfamily JYNGINAE

197. *Jynx torquilla chinensis* Hesse

Subfamily PICUMNINAE

198. *Picumnus innominatus innominatus* Burton
199. *Sasia ochracea reichenowi* Hesse

Subfamily PICINAE

200. *Micropternus brachyurus phaioceps* Blyth
201. *Picus myrmecophoneus* Stresemann
202. *Picus canus hessei* (Gyldenstolpe)
203. *Picus chlorolophus chlorolophus* Viellot
204. *Dinopium benghalense benghalense* (Linnaeus)
205. *Dinopium shorii shorii* (Vigors)
206. *Gecinulus grantia grantia* (Horsfield)
207. *Mulleripicus pulverulentus harterti* Hesse
208. *Picoides darjellensis darjellensis* (Blyth)
209. *Picoides cathpharius pyrrhothorax* (Hume)
210. *Picoides atratus* (Blyth)
211. *Picoides macei macei* (Vieillot)
212. *Picoides mahrattensis mahrattensis* (Latham)
213. *Picoides canicapillus semicoronatus* (Malherbe)
214. *Picoides nanus nanue* Vigors
215. *Hemicircus canente canent* (Lesson)
216. *Blythipicus pyrrhotis* (Hodgson)
217. *Chrysocolaptes lucidus sultaneus* (Hodgson)
218. *Chrysocolaptes lucidus guttacristatus* (Tickell)

Order PASSERIFORMES

Family EURYLAIMIDAE

219. *Serilophus lunatus rubropygius* (Hodgson)
220. *Psarisomus dalhousiae dalhousiae* (Jameson)

Family PITTIDAE

221. *Pitta nipalensis nipalensis* (Hodgson)
222. *Pitta sordida cucullata* Hartlaub

Family ALAUDIDAE

223. *Eremopterix* grisea (Scopoli)
224. *Calandrella cinerea dukhunesis* (Sykes)

Family HIRUNDINIDAE

225. *Hirundo rustica rustica* Linnaeus
226. *Hirundo rustica tytleri* Jerdon
227. *Delichon nipalensis nipalensis* Moore

Family LANIIDAE

228. *Lanius tephronotus tephronotus* (Vigors)
229. *Lanius schach tricolor* (Hodgson)
230. *Lanius cristatus cristatus* Linnaeus

Family ORIOLIDAE

231. *Oriolus xanthornus xanthornus* (Linnaeus)
232. *Oriolus traillii traillii* (Vigors)

Family DICRURIDAE

233. *Dicrurus adsimilis albirictus* (Hodgson)
234. *Dicrurus leucophaeus longicaudatus* Hay
235. *Dicrurus leucophaeus hopwoodi* Baker
236. *Dicrurus caerulescens caerulescens* (Linnaeus)
237. *Dicrurus annectans* (Hodgson)
238. *Dicrurus aeneus aeneus* Vieillot
239. *Dicrurus remifer tectirostris* (Hodgson)
240. *Dicrurus hottentottus hottentottus* (Linnaeus)
241. *Dicrurus paradiseus grandis* (Gould)

Family ARTAMIDAE

242. *Artamus fuscus* Vieillot

Family STURNIDAE

243. *Saroglossa spiloptera* (Vigors)
244. *Aplonis panayensis affinis* (Blyth)
245. *Sturnus malabaricus malabaricus* (Gmelin)
246. *Sturnus contra contra* Linnaeus
247. *Acridotheres tristis tristis* (Linnaeus)
248 *Acridotheres fuscus fuscus* (Wagler)
249. *Gracula religiosa intermedia* A.Hay

Family CORVIDAE

250. *Garrulus glandarius bispecularis* Vigors
251. *Garrulus glandarius interstinctus* Hartert
252 *Cissa chinensis chinensis* Boddaert
253. *Cissa erythrorhyncha magnirostris* (Blyth)
254. *Dendrocitta vagabunda vagabunda* (Latham)
255. *Dendrocitta frontalis frontalis* Horsfield
226. *Dendrocitta formosae himalayana* Jerdon
257. *Corvus splendens splendens* Vieillot
258. *Corvus macrorhynchos levaillanti* Lesson

Family CAMPEPHAGIDAE

259. *Hemipus picatus picatus* (Sykes)
260. *Tephrodornis virgatus pelvica* (Hodgson)
261. *Tephrodornis pondicerianus pondicerianus* (Gmelin)
262. *Coracina novaehollandiae macei* (Lesson)
263. *Coracina novaehollandiae nipalensis* (Hodgson)
264. *Coracina melaschistos melaschistos* (Hodgson)
265. *Pericrocotus flammeus fraterculus* Swinhoe
266. *Pericrocotus brevirostris brevirostris* (Vigors)
267. *Pericrocotus ethologus laetus* Mayr
268. *Pericrocotus solaris solaris* Blyth
269. *Pericrocotus roseus roseus* (Vieillot)

Family IRENIDAE

270. *Aegithina tiphia tiphia* (Linnaeus)
271. *Chloropsis aurifrons aurifrons* (Temminck)
272. *Chloropsis hardwickii hardwickii* Jardine & Selby
273. *Chloropsis cochinchinensis cochinchinensis* (Gmelin)
274. *Irena puella puella* (Latham)

Family PYCNONOTIDAE

275. *Spizixos canifrons canifrons* Blyth
276. *Pycnonotus atriceps atriceps* (Temmick)
277. *Pycnonotus melanicterus flaviventris* (Ticwell)
278. *Pycnonotus jocosus monticola* (Mc Clelland)

279. *Pycnonotus jocosus emeria* (Linnaeus)
280. *Pycnonotus cafer bengalensis* Blyth
281 *Pycnonotus cafer stanfordi* Deignan
282. *Pycnonotus striatus striatus* (Blyth)
283. *Pycnonotus flavescens flavescens* Blyth
284. *Criniger flaveolus flaveolus* (Gould)
285. *Hypsipetes viridescens cacharensis* (Deignan)
286. *Hypsipetes mcclellandi mcclellandi* Horsfield
287. *Hypsipetes flavalus flavalus* (Blyth)
288. *Hypsipetes madagascariensis nigrescens* Baker

Family MUSCICAPIDAE

Subfamily TIMALIIAE

289. *Pellorneum ruficeps mandelli* Blanford
290. *Pellorneum ruficeps chamelum* Deignan
291. *Pellorneum palustre* Gould
292. *Pellorneum albiventre albiventre* (Godwin-Austen)
293. *Trichastoma tickelli assamensis* (sharpe)
294. *Trichastoma abbotti abbotti* (Blyth)
295. *Pomatorhinus schisticeps schisticeps* Hodgson
296. *Pomatorhinus ruficollis bakeri* Harington
297. *Pomatorhinus erythrogenys mcclellandi* Godwin-Austen
298. *Pomatorhinus hypoleucos hypoleucos* (Blyth)
299. *Pomatorhinus ferruginosus formosus* Koelz
300. *Pomatorhinus ferruginosus phayrei* Blyth
301. *Pamatorhinus ochraceiceps austeni* Hume
302. *Xiphirhynchus superciliaris intextus* Ripley
303. *Rimator malacoptilus* Blyth
304. *Napothera brevicaudat astriata* (Blyth)
305. *Napothera epilepidota roberti* (Godwin-Austen & Walden)
306. *Pnoepyga albiventer albiventer* (Hodgson)
307. *Pnoepyga pusilla pusilla* Hodgson
308. *Spelaeornis longicaudatus* (Moore)

309. *Spelaeornis chocolatinus chocolatinus* (Godwin-Austen & Walden)
310. *Spelaeornis formosus* (Walden)
311. *Sphenocichla humeri roberti* Godwin-Austen & Walden
312. *Stachyris rufifrons ambigua* (Harington)
313. *Stachyris ruficeps ruficeps* Blyth
314. *Stachyris chrysaea chrysaea* Blyth
315. *Stachyris nigriceps spadix* Ripley
316. *Macronous gularis rubricapilla* (Tickell)
317. *Timalia pileata bengalensis* Godwin-Austen
318. *Paradoxornis nipalensis poliotis* (Blyth)
319. *Paradoxornis atrosuperciliaris atrosuperciliaris* (Godwin-Austen)
320. *Paradoxornis ruficeps ruficeps* Blyth
321. *Paradoxornis ruficeps bakeri* (Hartert)
322. *Paradoxornis gularis transfluvialis* (Hartert)
323. *Paradoxornis flavirostris flavirostris* Gould
324. *Paradoxornis guttaticollis* David
325. *Turdoides longirostris* (Hodgson)
326. *Turdoides striatus striatus* (Dumont)
327. *Garrulax moniliger moniliger* (Hodgson)
328. *Garrulax pectoralis melanotis* Blyth
329. *Garrulax striatus cranbrooki* (Kinnear)
330. *Garrulax leucolophus leucolophus* (Hardwicke)
331. *Garrulax leucolophus patkaicus* Reichenow
332. *Garrulax chinensis nuchalis* Godwin-Austen
333. *Garrulax delesserti gularis* (Mc Clelland)
334. *Garrulax rufogularis rufitinctus* (Koelz)
335. *Garrulax caerulatus subcaerulatus* Hume
336. *Garrulax ruficollis* (Jardine & Selby)
337. *Garrulax merulinus merulinus* Blyth
338. *Garrulax austeni austeni* (Godwin-Austen)
339. *Garrulax squamatus* (Gould)
340. *Garrulax erythrocephalus chrysopterus* (Gould)

341. *Garrulax phoeniceus bakeri* (Hartert)
342. *Leiothrix argentauris argentauris* (Hodgson)
343. *Leiothrix lutea calipyga* (Hodgson)
344. *Pteruthius flaviscapis validirostris* Koelz
345. *Pteruthius melanotis melanotis* Hodgson
346. *Pteruthius aenobarbus aenobarbulus* Koelz
347. *Gampsorhynchus rufulus rufulus* Blyth
348. *Actinodura egertoni khasiana* Godwin-Austen
349. *Minla strigula strigula* (Hodgson)
350. *Minla strigula cinereigenae* (Ripley)
351. *Minla cyanouroptera cyanouroptera* (Hodgson)
352. *Yuhina castaniceps castaniceps* (Moore)
353. *Yuhina bakeri* Rothschild
354. *Yuhina flavicollis flavicollis* Hodgson
355. *Yuhina flavicollis rouxi* (Oustalet)
356. *Yuhina occipitalis occipitalis* Hodgson
357. *Yuhina nigrimenta nigrimenta* Hodgson
358. *Yuhina xantholeuca xantholeuca* (Hodgson)
359. *Alcippe cinerea* (Blyth)
360. *Alcippe castaneceps castaneceps* (Hodgson)
361. *Alcippe brunnea mandelli* (Godwin-Austen)
362. *Alcippe poioicephala fusca* Godwin-Austen
363. *Alcippe nipalensis nipalensis* (Hodgson)
364. *Heterophasia gracilis* (Mc Clelland)
365. *Heterophasia pulchella* (Godwin-Austen)

Subfamily MUSCICAPINAE

366. *Muscicapa sibrica cacabata* Penard
367. *Muscicapa latirostris* Raffles
368. *Muscicapa muttui muttui* (Layard)
369. *Muscicapa ferruginea* (Hodgson)
370. *Muscicapa parva albicilla* Pallas
371. *Muscicapa strophiata strophiata* (Hodgson)

372. *Muscicapa monileger leucops* (Sharpe)
373. *Muscicapa hyperythra hyperythra* Blyth
374. *Muscicapa hodgsoni* (Verreaux)
375. *Muscicapa westermanni australorientis* Ripley
376. *Muscicapa superciliaris superciliaris* Jerdon
377. *Muscicapa superciliaris aestigma* Grey
378. *Muscicapa leucomelanura minuta* (Hume)
379. *Muscicapa sapphira* Blyth
380. *Muscicapa grandis grandis* (Blyth)
381. *Muscicapa macgrigoriae signata* (Horsfield)
382. *Muscicapa sundara sundara* (Hodgson)
383. *Muscicapa poliogenys poliogenys* (Brooks)
384. *Muscicapa unicolor unicolor* (Blyth)
385. *Muscicapa rubeculoides rubeculoides* (Vigors)
386. *Muscicapa banyumas magnirostris* (Blyth)
387. *Muscicapa thalassina thalassina* Swainson
388. *Culicicapa ceylonensis calochrysea* Oberholser
389. *Rhipidura hypoxantha* Blyth
390. *Rhipidura albicollis stanleyi* Baker

Subfamily MONARCHINAE

391. *Terpisphone paradisi saturatior* (Salomonsen)
392. *Hypothymis azurea styani* (Hartlaub)

Subfamily SYLVIINAE

393. *Tesia cyaniventer* Hodgson
394. *Tesia olivea* (Mc Clelland)
395. *Tesia castanaeocoronata castanaeocoronata* (Burton)
396. *Cettia pallidipes pallidipes* (Blanford)
397. *Cettia fortipes pallidus* (Brooks)
398. *Cettia fortipes fortipes* (Hodgson)
399. *Cettia major vafer* (Koelz)
400. *Cettia flavolivacea flavolivacea* (Hodgson)
401. *Cettia brunnifrons muroides* (Koelz)

402. *Bradypterus luteoventris luteoventris* (Hodgson)
403. *Cisticola juncidis cursitans* (Franklin)
404. *Prinia hodgsoni rufula* Godwin-Austen
405. *Prinia subflava inornata* Sykes
406. *Prinia socialis inglisi* Whistler & Kinnear
407. *Prinia criniger catharia* Reichenow
408. *Prinia atrogularis khasiana* (Godwin-Austen)
409. *Orthotomus sutorius patia* Hodgson
410. *Orthotomus atrogularis nitidus* Hume
411. *Orthotomus cucullatus coronatus* Blyth
412. *Locustella certhiola rubescens* Blyth
413. *Locustella naevia straminea* Seebohm
414. *Chaetornis striatus* (Jerdon)
415. *Megalurus palustris toklao* (Blyth)
416. *Phragmaticola aedon aedon* (Pallas)
417. *Phylloscopus affinis affinis* (Tickell)
418. *Phylloscopus fuscatus fuscatus* (Blyth)
419. *Phylloscopus pulcher pulcher* Blyth
420. *Phylloscopus inornatus mandellii* (Brooks)
421. *Phylloscopus inornatus inornatus* (Blyth)
422. *Phylloscopus proregulus newtoni* Gatke
423. *Phylloscopus magnirostris* Blyth
424. *Phylloscopus trochiloides viridanus* Blyth
425. *Phylloscopus trochiloides trochiloides* (Sundevall)
426. *Phylloscopus reguloides assamensis* Hartert
427. *Phylloscopus regulolides claudiae* (La Touche)
428. *Seicercus affinis* (Hodgson)
429. *Seicercus burkii burkii* (Burton)
430. *Seicercus xanthoschistos tephrodiras* Sick
431. *Seicercus poliogenys* (Blyth)
432. *Seicercus castaniceps castaniceps* (Hodgson)
433. *Abroscopus superciliaris flaviventris* (Jerdon)

434. *Abroscopus albogularis albogularis* (Horsfield & Moore)

Subfamily TURDINAE

435. *Brachypteryx leucophrys nipalensis* Hodgson
436. *Brachypteryx montana cruralis* (Blyth)
437. *Erithacus calliope* (Pallas)
438. *Erithacus pèctoralis confusus* (Hartert)
439. *Erithacus brunneus brunneus* (Hodgson)
440. *Erithacus pectardens* (David)
441. *Erithacus cyanurus rufilatus* (Hodgson)
442. *Erithacus chrysaeus chrysaeus* (Hodgson)
443. *Erithacus indicus indicus* (Vieillot)
444. *Erithacus hyperythrus* (Blyth)
445. *Copsychus saularis erimelas* (Oberholser)
446. *Copsychus malabaricus indicus* (Baker)
447. *Phoenicurus ochruros rufiventris* (Vieillot)
448. *Phoenicurus frontalis* (Vigors)
449. *Phoenicurus auroreus leucopterus* (Blyth)
450. *Rhyacornis fuliginosus fuliginosus* (Vigor)
451. *Cinclidium leucurum* (Hodgson)
452. *Enicurus scouleri scouleri* vigors
453. *Enicurus immaculatus* (Hodgson)
454. *Enicurus schistaceus* (Hodgson)
455. *Enicurus leschenaulti indicus* Hartert
456. *Enicurus maculatus guttatus* Gould
457. *Cochoa purpurea* Hodgson
458. *Saxicola torquata przevalskii* (Pleske)
459. *Saxicola torquata indica* (Blyth)
460. *Saxicola caprata burmanica* Baker
461. *Saxicola jerdoni* (Blyth)
462. *Saxicola ferrea* Gray
463. *Chaimarrornis leucocephalus* (Vigors)
464. *Monticola cinclorhynchus* (Vigors)

465. *Mondicola rufiventris* (Jardine & Selby)
466. *Monticola solitarius pandoo* (Sykes)
467. *Myiophonus caeruleus temminckii* Vigors
468. *Zoothera citrina citrina* (Latham)
469. *Zoothera mollissima mollissima* (Blyth)
470. *Zoothera dauma dauma* (Latham)
471. *Zoothera monticola monticola* Vigors
472. *Zoothera marginata* Blyth
473. *Turdus dissimilis dissimilis* Blyth
474. *Turdus unicolor* Tickell
475. *Turdus albocinctus* Royle
476. *Tujrdus boulboul* (Latham)
477. *Turdus rubrocanus rubrocanus* G.R. Gray
478. *Turdus rubrocanus gouldii* (Verreaux)
479. *Turdus feai* (Salvadori)
480. *Turdus obscurus* Gmelin
481. *Turdus ruficollis atrogularis* Jarocki
482. *Turdus ruficollis ruficollis* Pallas
483. *Turdus naumanni eunomus* Temminck

Family CINCLIDAE

484. *Cinclus pallasii dorjei* Kinnear

Family PARIDAE

Subfamily PARINAE

485. *Melanochlora sultanea sultanea* (Hodgson)
486. *Parus major nipalensis* Hodgson
487. *Parus monticolus monticolus* Vigors
488. *Parus spilonotus subviridis* Blyth

Subfamily AEGITHALINAE

489. *Aegithalos concinnus manipurensis* (Hume)

Family SITTIDAE

490. *Sitta europaea nagaensis* Godwin-Austen
491. *Sitta castanea cinnamoventris* Blyth

492. *Sitta formosa* Blyth
493. *Sitta frontalis frontalis* Swainson

Family CERTHIIDAE

494. *Certhia familiaris mandellii* Brook
495. *Certhia discolor manipurensis* Hume·

Family MOTACILLIDAE

496. *Anthus hodgsoni hodgsoni* Richmond
497. *Anthus novaeseelandiae richardi* Vieillot
498. *Anthus novaeseelandiae rufulus* Vieillot
499. *Anthus godlewskii* (Taezanowski)
500. *Anthus cervinus* (Pallas)
501. *Anthus roseatus* Blyth
502. *Motacilla indica* Gmelin
503. *Motacilla citreola calcarata* Hodgson
504. *Motacilla cinerea cinera* Tunstall
505. *Motacilla alba dukhunensis* Sykes
506. *Motacilla alba personata* Gould

Family DICAEIDAE

507. *Dicaeum agile agile* (Tickell)
508. *Dicaeum chrysorrheum chrysochlore* Blyth
509. *Dicaeum erythrorhynchos erythrorhynchos* (Latham)
510. *Dicaeum concolor olivaceum* Walden
511. *Dicaeum cruentatum cruentatum* (Linnaeus)
512. *Dicaeum ignipectus ignipectus* (Blyth)

Family NECTARINIIDAE

513. *Anthreptes singalensis rubinigentis* (Baker)
514. *Nectarinia zeylonica sola* (Vieillot)
515. *Aethopyga gouldiae isolata* Baker
516. *Aethopyga nipalensis nipalensis* (Hodgson)
517. *Aethopyga saturata assamensis* (Mc Clelland)
518. *Aethopyga siparaja scheriae* (Tickell)
519. *Aethopyga siparaja labecula* (Horsfield)
520. *Aethopyga ignicauda ignicauda* (Hodgson)
521. *Arachnothera longirostris longirostris* (Latham)
522. *Arachnothera magna magna* (Hodgson)

Family ZOSTEROPIDAE

523. *Zosterops palpebrosa palpebrosa* (Temminck)

Family PLOCEIDAE

Subfamily PASSERINAE

524. *Passer domesticus indicus* Jardine & Selby

525. *Passer montanus malaccensis* Dubois

526. *Passer rutilans cinnamomeus* (Gould)

527. *Passer rutilans intensior* Rothschild

Subfamily PLOCEINAE

528. *Ploceus philippinus burmanicus* Ticehurst

Subfamily ESTRILDINAE

529. *Estrilda amandava amandava* (Linnaeus)

530. *Lonchura striata acuticauda* (Hodgson)

531. *Lonchura punctulata subundulata* (Godwin-Austen)

532. *Lonchura malacca rubroniger* (Hodgson)

533. *Lonchura malacca atricapilla* (Vieillot)

Family FRINGILLIDAE

534. *Mycerobas melanozanthos* (Hodgson)

535. *Carpodacus erythrinus roseatus* (Blyth)

536. *Propyrrhula subhimachala* (Hodgson)

537. *Haematospiza sipahi* (Hodgson)

Family EMBERIZIDAE

538. *Emberiza fucata arcuata* Sharpe

539. *Emberiza pusilla* Pallas

540. *Melophus latha mi* (Gray)

SYSTEMATIC ACCOUNT

Order PODICIPEDIFORMES

Family PODICIPEDIDAE

Genus ***Podiceps*** LATHAM,1787

1. ***Podiceps ruficollis capensis*** Salvadori

1884. *Podiceps capensis* Salvadori, *Ann. Mus. Civ. Genova,* (2), **1** : 252 (Shoa, Africa).

1978. *Podiceps ruficollis capensis*, Ali and Ripley, Vol. 1 : 6.

Common name : Little Grebe or Dabchick (English) and Pandubi (Hindi).

Material examined : Nil.

Diagnostic characters : A small tailless aquatic bird with short pointed bill. Legs placed backwardly for swiming and diving. Crown of head dark brown, sides of head, throat and neck chestnut.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Throughout the Indian Union except the Andaman and Nicobar Islands. Elsewhere : Bangladesh, Bhutan, Madagascar, Middle East and Nepal, Northern Africa, Pakistan, Sri Lanka and S.E. Asia.

Remarks : Observed this bird at Barapani, the Ri-Bhoi Hills.

Order PELICANIFORMES

Family PHALACROCORACIDAE

Key to the genera of the family Phalacrocoracidae

Neck and body long, rather spindle-shaped, bill laterally compressed ..... ***Phalacrocorax***

Neck very slender with a bend at the 8th & 9th vertebrae, bill slender,

straight, very sharp-- pointed..... ***Anhinga***

Genus ***Phalacrocorax*** Braisson, 1760

2. ***Phalacrocorax carbo sinensis*** (Shaw)

1801. *Pelecanus sinensis* Shaw, *Nat. Misc.*, 13 : Pl. 529 text (China).

1978. *Phalacrocorax carbo sinensis,* Ali and Ripley, vol. 1:37.

Common name : Large Cormorant (English) and Pan-Kowwa (Hindi).

Material examined : Nil.

Diagnostic characters : A black duck-like water bird with slender bill, hooked at tip. Tail longish, stiff. Facial skin and throat white, gular-pouch bright yellow.

Distribution : India : Meghalaya (Garo Hills district) : Assam, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Sri Lanka.

Remark : Godwin Austen (1870, P.275) recorded it from the Lumessary river near Rywick in the Garo Hills and mentioned it as *Phalacrocorax carbo* Linnaeus.

3. ***Phalacrocorax niger*** (Vieillot)

1817. *Hydrocorax niger*, Vieillot, *Nouv. Dict. Hist. nat.*, 8 : 88 (East Indies = Bengal).

1978. *Phalacrocorax niger,* Ali and Ripley, vol. 1 : 41.

Common name : Little Cormorant (English) and Pan-Kowwa (Hindi).

Material examined : Nil.

Diagnostic characters : Black bird with a bluish or greenish sheen. A short crest on occiput and neck. Bill stouter. Forehead domed shaped, tail longer.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Throughout the Indian Mainland (absent in the Himalayas). Elsedwhere : Pakistan.

Remarks : This bird was observed at Barapani, the Ri-Bhoi Hills district.

Genus ***Anhinga*** Brisson, 1760

4. ***Anhinga rufa melanogaster*** Pennant,

1769. *Anhinga melanogaster* Pennant, Indian Zool. : 13, p. 12 (Sri Lanka and Java).

1978. *Anhinga rufa melanogaster,* Ali and Ripley, vol. 1 : 43.

Common name : Darter or Snake-bird (English) and Pandubi (Hindi).

Material examined : Nil

Diagnostic characters : A black water bird with longer and slender snake-like neck. Narrow head with straight and pointed bill. Tail long, stiff and fan-shaped.

Distribution : India : Meghalaya (Ri-Bhoi Hills district): Throught the Indian Union except Arunachal Pradesh, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh, Burma (Myanmar), Malaysia, Old Indochina, Pakistan and Sulawesi.

Remarks : Observed this bird at Barapani, the Ri-Bhoi Hills district.

Order CICONIIFORMES

Family ARDEIDAE

Key to the genera of the family Ardeidae

1. Large sized, wing above 320 mm.....***Ardea***
   Medium or small-sized, wing below 320 mm.....2
2. Plumage mainly white coloured, breast with elongated plumes.....3
   Plumage mainly varied coloured.....4
3. Bill yellow.....***Bubulcus***
   Bill black.....***Egretta***
4. Plumage mainly ashy grey with greenish black.....***Nycticorax***
   Plumage mainly chestnut, yellowish brown, slaty grey to almost black.....5
5. Feathers of head and neck elongated.....***Ardeola***
   Feathers of head and neck not elongated.....***Ixobrychus***

Genus ***Ardea*** Linnaeus, 1758

5. ***Ardea cinerea rectirostris*** Gould

1843. *Ardea rectirostris* Gould, *Proc. Zool. Soc. Lond.* : 22 (New South Wales'=India ?' Stone, 1913, *Austral. Av. Rec.,* 1: 142 restricted by Ripley 1961, Synopsis : 12 to India).

1978. *Ardea cinerea rectirostris,* Ali and Riply, vol. 1 : 55.

Common name : Eastern Grey Heron (English) and Anjan (Hindi).

Material examined : Nil

Diagnostic characters : Ashy-grey with white crown and neck with a long black occipital crest below a prominent black-dotted line down the middle of foreneck. Leg and neck very long. Breast with elongated black-streaked white feathers. Abdominal feathers greyish white.

Distribution : India : Meghalaya (South Garo Hills district): Throughout the Indian Union. Elsewhere : Africa (Northern part) to Asia minor, Bangladesh, Burma, (Myanmar), China, Europe, Hainan, Indochina, Japan, Malaysia, Nepal, Pakistan, Siberia and Thailand.

Remarks : This bird observed on the bank of the river Phuleswar, Baghmara, the South Garo Hills.

6. ***Ardea purpurea manilensis*** Meyen

1834. *Ardea purpurea* var *manilensis* Meyen, *Nova Acta Acad. Caes. Leop.,Carol.,* 16, suppl. : 102-103 (Philippines).

1978. *Ardea purpurea manilensis,* Ali and Ripley, vol. I : 57.

Common name : Eastern Purple Heron (English) and Lal Anjan (Hindi).

Material examined : Nil.

Diagnostic characters : Purplish blue or slaty bird with blackish wing and tail. Crown and crest slaty black, rest of head and neck ferruginous with boldly striped black, chin and throat white. Upper breast buffly-white, black and chestnut streaks. Abdomen slaty black and chestnut.

Distribution : India : Meghalaya (East Garo Hills district); Throughout the Indian Mainland. Elsewhere : Burma (Myanmar), China south of the Yangtze, Ryukyu Islands and Thailand.

Remarks : Observed on the bank of the river Simsang at Rongrenggiri, the East Garo Hills.

7. ***Ardea alba modesta*** J. E. Gray

1831. *Ardea modesta* J.E. Gray, *Zool., Misc.* : 19 (India).

1982. *Ardea alba modesta,* Ripley, 14.

Common name : Large Egret (English) and Bada bagla (Hindi).

Material examined : Nil.

Diagnostic characters : Snow white marsh bird with blackish legs. Head with long slender neck and pointed black and yellow bill. In the breeding season, a bunch of ornamental filamentous plumes develop on the back.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the Indian Union). Elsewherre : The Americas, Asia South to Australia, Bangladesh, Europe, Nepal, New Zealand, Pakistan and Sri Lanka.

Remarks : This bird was seen in the marshy paddy field near Phulbari, the West Garo Hills.

Genus ***Ardeola*** Boie, 1822

8. ***Ardeola striatus chloriceps*** (Bonaparte)

1857.*Ardea chloriceps* 'Hodgs' = Bonaparte, *Consp. Gen. Av.*, 2 : 129 (Nepal Restricted to Hitaura, Chisapani Garhi district, by Biswas, 1959, *Curr. Sci.*, 28 : 288).

1982. *Ardeola striatus chloriceps*, Ripley, vol. : 14

Common name : Little Green Heron (English).

Material examined : Nil

Diagnostic characters : A slaty grey with dark-green and bronze-green bird. Crown and long occipital crest glossy, greenish black; cheek white. Head and neck grey; chin and centre of throat white. Undertail-coverts white with blackish tips.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the Indian Union. Elsewhere : Bangladesh, Burma (Myanmar), Celebes (Sulawesi), Indochina, Indonesia, Malaysia, Pakistan, Philippines, Sunda Islands and Thailand.

Remarks : This bird was observed on the marshy areas near Barangapara, the West Garo Hills.

9. ***Ardeola grayii grayii*** (Sykes)

1832. *Ardeo grayii* Sykes, *Proc., zool.,Soc.,Lond.*, 158 (Dukhun= Deccan)

1978. *Ardeola grayii grayii*, Ali and Ripley, vol. 1 : 63.

Common name : Indian Pond Heron or paddybird (English) and Kunch bagla (Hindi).

Material examined : East Garo Hills district : 1 ♂ Sarengma *c.* 10 Km. N. of Dudnai, coll. Z.S.I. party, 1.vii. 1949. Ri-Bhoi Hills district, 1 ♂: Byrnihat, coll. Z.S.I. party, 24.v. 1949.

Diagnostic characters : Earthy brown bird with head and neck dark brown, streaked with yellowish buff. Chin and throat white; upper breast white streaked with brown. Rest of plumage white including tail. In breeding, long recumbent white or buff occipital crest of lanceolate plumes.

Measurements : 1 ♂ : Wing 199, tail 73, bill 74.

Distribution : India : Meghalaya (East Garo Hills and Ri-Bhoi Hills districts): Throughout the Indian Union. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Iran, Iraq, Malaysia, Nepal, Pakistan and Sri Lanka.

Remarks : Seen it on the paddy field throughout East Garo Hills.

Genus ***Bubulcus*** Bonaparte, 1855

10. ***Bubulcus ibis coromandus*** (Boddaert)

1783. *Cancroma coromanda* Boddaert, *Tabl. pl., enlum : 54* (Coromandel, Tamil Nadu, India).

1978. *Bubulcus ibis coromandus*, Ali and Ripley, vol. 1 : 66.

Common name : Cattle Egret (English) and Gai bagla (Hindi).

Material examined : Nil.

Diagnostic characters : A snow white bird usually seen on grazing cattle. Bill yellow. Orbital and facial skin greenish yellow. Legs and feet black In breeding, head, neck and back golden buff feathers disintegrated and hair-like.

Distribution : India : Meghalaya (East, South and West Garo Hills districts) : Throughout the Indian Union. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Celebes and Ceram, Formosa, Hainan, Indochinese countries, Korea, Malaysia, Nepal, Pakistan, Philippines, Sri Lanka, South America, South China, South Japan, Sunda Islands and U.S.A.

Remarks : Seen this bird throughout Garo Hills districts.

Genus ***Egretta*** Forster, 1817

11. ***Egretta intermedia intermedia*** (Wagler)

1829. *Ardea intermedia* Wagler, *Isis von Oken, col.* 659 (Java).

1978. *Egretta intermedia intermedia,* Ali and Ripley, vol. 1:71.

Common name : Smaller or Median Egret (English) and Karchia Bagla (Hindi).

Material examined : Nil.

Diagnostic characters : Plumage entirely white. Occipital crest absent. In breeding, on back as well as breast, presence of decomposed filamentous plumes. Legs and feet black. Bill black; yellow at base (breeding).

Distribution : India : Meghalaya (East, South and West Garo Hills districts): Throughout the Indian Union. Elsewhere: Bangladesh, Burma (Myanmar), Indochinese countries, Japan, Malaysia, Nepal, Phillipines, Greater Sunda Island and Thailand.

Remarks : Observed it throughter the Garo Hills.

12. ***Egretta garzetta garzetta*** (Linnaeus)

1766. *Ardea garzetta* Linnaeus, *Syst. Nat.*, ed. 12, 1 : 237 (Oriente' = northeast Italy).

1978. *Egretta garzetta garzetta,* Ali and Ripley, vol. 1 : 72.

Common name: Little Egret (English) and Kilchia (Hindi).

Material examined : Nil.

Diagostic characters : Size equal to Hen. Plumage showwhite ; bill black. Legs black, feet orange-yellow. In breeding. nuchal creat of two long narow plumes and filamentous feathers on back and breast.

Distribution : India : Meghalaya (South Garo Hills district) : Throughout the Indian Union. Elsewhere : Afghanistan, Africa (east), Bangladesh, Burma (Myanmar), China, Europe (South and east), Hainan, Iran, Japan, Malaysia (Middle East) Nepal, Pakistan and Sri Lanka.

Remarks : Observed this bird near Baghmara, the South Garo Hills.

Genus ***Nycticorax*** T. Forster, 1817

13. ***Nycticorax nycticorax nycticorax*** (Linnaeus)

1758. *Ardea nycticorax* Linnaeus, *Syst. Nat.* ed. 10, a : 142 (Southern Europe).

1978. *Nycticorax nycticorax nycticorax*, Ali and Ripley, vol. 1: 78.

Common name : Night Heron (English) and Tarbagla (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to Pond Heron. Bill stout. Back and scapular ashy-grey with greenish black. Forehead and sides of head white. Occipital crest, crown and nape black. Sides of breast and belly ashy-grey. Legs and feet dull green.

Distribution : India : Meghalaya (East Khasi Hills district and South Garo Hills district.) : Throughout the Indian Union. Elsewhere : Africa, Bangladesh, Burma (Myanmar), Bhutan, China, Indochinese countries, Japan, Malaysia, Middle East, Nepal, Pakistan and Sri Lanka.

Remarks : Observed this bird near Baghmara, the South Garo Hills. Hume (1888, p. 337) reported it from Shillong, the East Khasi Hills.

Genus ***Ixobrychus*** Billberg, 1828

14. ***Ixobrychus cinnamomeus*** (Gmelin)

1789. *Ardea cinnamomea* Gmelin, *Syst. Nat.*, 1(2) : 643 (China).

1978. *Ixobrychus cinnamomeus,* Ali and Ripley, vol. 1 : 84.

Common name : Chestnut Bittern (English) and Lalbagla (Hindi).

Material examined : East Garo Hills district : 1 ♂, Sarengma *c.* 10 Km. N. of Dudnai, coll. B. Nath, 3.vii. 1949. Ri-Bhoi Hills district : 1 ♂, Nongpoh, coll. H.L. Hiteshi, 8.v. 1949.

Diagonostic characters : In male, crown, crest, back and wings chestnut-cinnamon. Chin and throat whitish; dark median stripe on forehead. In female, head and back chestnut-brown. Crown blackish. Underwing rufous-buff.

Measurements : 2 ♂ : Wing 147, 155; tail 47, 49; bill 62, 64.

Distribution : India : Meghalaya (East Garo Hills and Ri-Bhoi Hills districts): Throughout the Indian Union. Elsewhere : Bangladesh, Burma (Myanmar), China from Manchuria to Hainan, Celebes (Sulawesi) Malaysis, Pakistan, Philippines, Ryukhu Islands, Sri Lanka, Sunda Islands and Thailand.

15. ***Ixobrychus sinensis*** (Gmelin)

1789. *Ardea sinensis* Gmelin, *Syst. Nat.* 1(2) : 642(China).

1978. *Ixobrychus sinensis,* Ali and Ripley, vol. 1 : 86.

Common name : Yellow Bittern (English) and Funbagla (Hindi).

Material examined : Nil.

Diagnostic characters : In male, back chiefly yellowish brown, bushy Crest and Crown black. Sides of neck vanous pink. Rump dark ashy, tail slaty black. Chin and throat pale yellow. Vent and abdomen yellowish-buff. In female, similar to male except a buff mesial line down the foreneck and throat.

Distribution : India : Meghalaya (East Khasi Hills district): Throughout the Indian Union except Mizoram and Nagaland. Elsewhere: Bangladesh, Burma (Myanmar), Caroline Island, Japan, Malaya to China,New Guinea, Sri Lanka and Thailand.

Remarks : Hume (1888, p. 336) reported this bird from near Shillong, the East Khasi Hills.

16. ***Ixobrychus flavicollis flavicollis*** (Latham)

1790. *Ardea flavicollis* Latham *Index, Orn.*, 2 : 701 (India).

1978. *Ixobrychus flavicollis flavicollis*,Ali and Ripley, vol. 1:88.

Common name : Black Bittern (English) and Kalabagla (Hindi).

Material examined : Nil.

Diagnostic characters : Size slightly bigger than the Pond Heron. In male, head, back, wing and tail slaty grey to almost black. On either side of the neck bright ochre-yellow band. Chin and throat white with a rufous dotted line in the middle of neck.In female, head, back and wing more brown less slaty grey. Breast streaked with while and rufous.

Distribution : India : Meghalaya (East Garo Hills district): Throughout the Indian Union excluding Andaman and Nicobar Islands. Elsewhere : Bangladesh, Burma (Myanmar), China, Celebes, (Sulawesi) Greater Sunda Is., Indochina, Malaysia, Nepal and Pakistan.

Remarks : Observed this bird near Rongrenggiri, the East Garo Hills.

Family CICONIIDAE

Key to the genera of the family Ciconiidae

1. Mandibles leaving open space near middle of bill .....***Anastomus***

   Mandibles not leaving any space.....2

2. Bill down curved, wedge- shaped, yellow; legs and feet pinkish brown.....***Mycteria***

   Bill slighty upcurved, heavy pointed, red; legs and feet bright red .....***Ciconia***

Genus ***Mycteria*** Linnaeus, 1758

17. ***Mycteria leucocephala*** (Pennant),

1769. *Tantalus leucocephalus* Pennant, *Indian Zool.*, 11, pl. 10 (Ceylon = Sri Lanka).

1978. *Mycteria leucocephala*,Ali and Riply,vol. 1: 93.

Common name : Painted Stork (English) and Janghil (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to vulture. Face yellow, unfeathered, waxy; bill yellow and slightly curved; fleshy brown long-legged, neck long. Plumage white closely barred with metallic, greenish black on back. Breast acrossed with black band; delicate rosepink near the tail, shoulders and wing.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Throughout the Indian mainland except Arunachal Pradesh, Himachal Pradesh and Jammu & Kashmir. Elsewhere : Bangladesh, Burma (Myanmar), China, Indochinese countries, Malaya Peninsula, Nepal, Pakistan, Sri Lanka and Thailand.

Remarks : Seen this bird at Barapani, the Ri-Bhoi Hills.

Genus ***Anastomus*** Bonnaterre, 1791

18. ***Anastomus oscitans*** (Boddaert)

1783. *Ardea oscitans* Boddaert, *Table Pl. enlum.*, 55 (Pondicherry, India).

1978. *Anastomus oscitans,* Ali and Ripley, vol. 1: 95.

Common mane : Openbill Stork (English) and Ghonghila (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to large Duck. Bill wedge-shaped, yellow. Legs and feet pinkish brown. Neck, back and breast white mantle. Wings and tail greenish black.

Distribution : India : Meghalaya (East Garo Hills district) : Throughout the Indian Union. Elsewhere : Bangladesh, Burma (Myanmar), Indochinise sub region, Malaysia, Nepal, Pakistan, Sri Lanka and Thailand.

Remarks : Observed it at Rongrenggiri, the East Garo Hills.

Genus ***Ciconia*** Brisson, 1760

19. ***Ciconia episcopus episcopus*** (Boddaert)

1783. *Ardea episcopus* Boddaert, *Table Pl. enlum.*, : 54 (Coromandel Coast, Tamil Nadu).

1978. *Ciconia episcopus episcopus,* Ali and Ripley, vol. 1:98.

Common name : Whitenecked Stork (English) and Laglag (Hindi).

Material examined : Nil.

Diagnostic characters : Back, wing and short tail black glossed with purple or greenish blue. Crown black, neck white. Undertail-coverts white. Legs and feet long and red in colour.

Distribution : India : Meghalaya (South Garo Hills district): Throughout the Indian Mainland except Arunachal Pradesh, Himachal Pradesh and Jammu and Kashmir. Elsewhere : Bangladesh, Burma (Myanmar), Nepal, Pakistan and Sri Lanka.

Remarks : Seen it al Baghmara, the South Garo Hills.

Family THRESKIORNITHIDAE

Key to the genera of the family Threskiornithidae

1. Bill slender, slightly downcurved, neck bare ..... ***...Threskiornis***
2. Bill greatly flattened, becoming broader and spoonshaped at the tip, face and throat naked ..... ***Platalea***

Genus ***Threskiornis*** G.R. Gray, 1842

20. ***Threskiornis aethiopica melanocephala*** (Latham)

1790. *Tantalus melanocephalus* Latham, *Index Orn.*, 2: 709 (India).

1978. *Threskiornis aethiopica melanocephala,* Ali and Ripley, vol. 1 : 110.

Common name : White Ibis (English) and Munda (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to large domestic Hen. Entire plumage excepting head and neck

snow-white; head and neck black. Bill down curved, long and stout.

Distribution : India : Meghalaya (South Garo Hills district) : Throughout the Indian mainland. Elsewhere : Bangladesh, Burma (Myanmar), China (Sporadically), Japan, Nepal, Pakistan and Sri Lanka.

Remarks : Observed it near Baghmara, the South Garo Hills.

Genus ***Platalea*** Linnaeus 1758

21. ***Platalea leucorodia major*** Temminck & Schlegel

1849. *Platalea major* Temminck & Schlegel in Siebold, *Fauna Jap.*, Aves : 119, pl. 73 (Japan).

1978. *Platalea leucorodia major*, Ali and Ripley, vol. 1 : 116.

Common name : Spoonbill (English) and Chamcha (Hindi).

Material examined : Nil.

Diagnostic characters : Size bigger than the domestic Duck; plumage snow-white. Long necked and long-legged (black).Bill black and yellow, spatula-shaped. Cinnamon-yellow patch at foreneck.

Distribution : India : Meghalaya (East Garo Hills distict): Throughout the Indian Mainland. Elsewhere : Bangladesh, Central Asia from China, Egypt, Japan, Nepal, Pakistan, Sri Lanka, Syria, Taiwan, Transbaikalia and Ussuriland.

Remarks : Observed it on the bank of the river Sinsang, Rongrenggiri, the East Garo Hills.

Order ANSERIFORMES

Family ANATIDAE

Key to the genera of the family Anatidae

1. Hind toe not lobed.....***Anser***

   Hind toe lobed.....2

2. Hind toe narrowly lobed.....3

   Hind toe broadly lobed.....5

3. Bill short and goose-like.....***Nettapus***

   Bill rather flat and broad.....4

4. Primaries equal to secondaries is length.....***Dendrocygna***

   Primaries longer than the Secondaries.....***Anas***

5 Bill long and thin with sawlike teeth on edges of both mondibles.....***Mergus***

   Bill of moderate length, lack of saw-like teeth.....***Aythya***

Genus ***Anser*** Brisson, 1760

22. ***Anser anser rubrirostris*** Swinhoe

1871. *Anser cinereus* var. *rubrirostris* Swinhoe, *Proc. Zool. Soc. Lond.*, : 416, ex. Gray, 1846 *Cat. Bds.*

Nepal, 144, *nom. nud.* ex Hodgson, 1844, *Zool. Misc.* : 86, *nom. nud.* (Shanghai).

1978. *Anser anser rubrirostris,* Ali and Ripley, vol. 1 : 129.

Common name: Eastern Grey Lag Goose (English) and Rajhans (Hindi).

Material examined : Nil.

Diagnostic characters : Size bigger than the domestic Goose; plumage barred with ashy-brown. Uppertail-coverts white; bill, legs and feet pink.

Distribution : India : Meghalaya (South Garo Hills district): Throughout the Indian Mainland except Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. Elsewhere : Bangladesh, Black and Caspian sea, China, eastern Mediterranean and Seistan. Breeds eastward from c. 40° E. and South of 60° N. through Asia Minor and central Asia to Kamchatka.

Remarks : Observed this bird on the river Phuleswar near Baghmara, the South Goro Hills.

Genus ***Dendrocygna*** Swainson, 1837

23. ***Anas javanica*** Horefield

1821. *Anas javanica* Horsfield, *Trans. Linn. Soc. Lond., 13* : 199, pl. 1 (Java).

1978. *Dendrocygna javanica,* Ali and Ripley, vol. 1: 138.

Common name : Lesser Whistling Teal (English) and Seelkahi (Hindi).

Material examined : Nil.

Diagnostic characters : Size smaller than trhe domestic Duck. Uppertail-coverts uniformly chestnut.

Distribution : India : Meghalaya (East Khasi Hills district) : Throughout the Indian Union. Elsewhere : Bangladesh, Burma (Myanmar), China (Southern part), Indonesia, Malaysia, Nepal, Pakistan, Ryukyu Is., Sri Lanka, Thailand and Vietnam.

Remarks : Seen it near Mawphlang, the East Khasi Hills

Genus ***Anas*** Linnaeus, 1758

24. ***Anas acuta*** Linnaeus

1758. *Anas acuta* Linnaeus, *Syst. Nat.,* ed. 10, 1 : 126 (Sweden).

1978. *Anas acuta* Ali and Ripley, vol. 1 : 149.

Common name : Pintail (English), Seenkh par (Hindi) and Dogep (Garo).

Material examined : Nil.

Diagnostic characters : Size smaller than the domestic Duck. In male, head and throat chocolate. A white band running down either side of neck. Speculum metallic bronze-green; central tail-feathers long, pointed and pin-like. in female, tail without pin-like elongation, colouration mottled brown and buff.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Throughout the Indian subcontinent excluding Andaman Nicobar Islands. Elsewher : Europe, N. America, including British Isles. China, Ethiopia, N. Africa and the persian Gulf.

Remarks : Observed it at Barapani, the Ri-Bhoi Hills.

25. ***Anas crecca crecca*** Linnaeus

1758. *Anas crecca* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 126 (Sweden).

1978. *Anas crecca crecca* Ali and Ripley, vol. 1 : 151.

Common name : Common Teal (English), Chhoti murghabi (Hindi) and Gagak (Garo).

Material examined : Nil.

Diagnostic characters : Size smaller than the domestic Duck. In male, head chestnut with a broad metallic green band running backward from in front of eye to nape. A speculum (Metallic green) backside of white wing-patch. In female, colouration mottled dark and light brown with black and green wing speculum.

Distribution : India : meghalaya : (Ri-Bhoi Hills district): Throughout the Indian Union.Elsewhere : Pakistan, Nepal, Bangladesh, Sri Lanka, Burma (Myanmar), China, IndoChinese Countries, Philippines, N. Africa, Nile valley, Somali Land and Persia, Breeds, in Europe and Asia from Iceland to China, Manchuria, Kurib Islands and Japan.

Remarks : Observed it near Barapani, the Ri-Bhoi Hills.

26. ***Anas strepera strepera*** Linnaeus

1758. *Anas strepera*.Linnaeus, *Syst. Nat.*, ed. 10, 1 : 125 (Sweden).

1978. *Anas strepera strepera* Ali and Ripley, vol. 1 : 163.

Common name : Gadwall (English) and Myla (Hindi).

Material examined : Nil.

Diagnostic characters : In breeding male, general effect dark brown and grey with black tail. Chestnut patch with black and white speculum in wing. In female, duller and smaller, dark brown motled with buff; leg orange-yellow, wing with white wing mirror (Speculm).

Distribution : India : Meghalaya (Ri-Bhoi Hills district):Throughout the Indian Mainland, rare in south India. Elsewhere : Pakistan, Nepal, Bangladesh, Sri Lanka, N. Africa, Ethiopia, China. Breeds in Eurasia from Iceland to Kamchatka, South to England, Holland, Germany, Central Russia, Caspian, Seistan, and Transbaikalia.

Remarks : Observed it at Barapani, the Ri-Bhbi Hills.

27. ***Anas penelope*** Linnaeus

1758. *Anas penelope* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 126 (Sweden)

1978. *Anas penelope*, Ali and Ripley, vol. 1 : 167.

Common name : Wigeon (English) and Chhote lal Sir (Hindi).

Material examined : Nil.

Diagnostic characters : Size less than Domestic Duck. In breeding male, head and neck chestnut; forehead and crown cream colour, a white horizontal bar on closed wing. Tail black. In female, general aspect duller and less reddish brown, lesser wing-coverts grey.

Distribution : India : Meghalaya (Khasi Hills district):Throughout the Indian Mainland. Elsewhere : Pakistan, Nepal, Bangladesh, Sri Lanka, China, Japan, Nile Valley and Abyssinia and Britain. Breeds in temperate and Scotland to Kamchatka.

Remarks : Observed it at Barapani, the Ri-Bhoi Hills.

28. ***Anas clypeata*** Linnaeus

1758. *Anas clypeata* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 124 (SouthSweden).

1978. *Anas clypeata*, Ali and Ripley, vol. 1 : 172.

Common name : Shoveller (English) and Chirah (Hindi).

Material examined : Nil.

Diagnostic characters : In breeding male, head and neck glossy metallic green, wing-shoulder-patch pale blue. A white bar between wing patch and metallic green speculum. Breast white, vent and abdomen reddish chestnut. In female, general aspect mottled dark brown and buff, with greyish blue shoulder-patch.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Through the Indian Mainland. Elsewhere : Pakistan, Nepal, Bangladesh, Sri Lanka, Burma (Myanmar), China, Japan, Hawaii, Lower California, Honduras, Florida (U.S.A.), East Africa dna Persian Gulf. Breeds in Europe (commonly in Britain), Asia and N. America.

Remarks : Noticed it at Barapani, the Ribhoi Hills.

Genus ***Aythya*** Boie, 1822

29. ***Aythya ferina*** (Linnaeus)

1758. *Anas ferina* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 126 (Sweden).

1978. *Aythya ferina*, Ali and Ripley, vol. 1 : 180.

Common name : common pochard (English) and Lal Sir (Hindi).

Material examined : Nil.

Diagonostic characters : Size less than the domestic Duck. In breeding male, head and neck chestnut-red, breast black; vent and belly light grey finely vermiculated with black, rump black, a dull grey speculm on wing. In female, head, neck and breast rufous-brown.

Distribution : India : Meghalaya (South Garo Hills district) : Throughout the Indian Mainland except Kerala, Mizoram, Nagaland and Indian Mainland except Kerala, Mizoram, Nagal and Tamil Nadu. Elsewhere : Bangladesh, Burma (Myanmar), China, Nepal, Nile valley and Pakistan. Breeds in British Isles., S. Scandinavia and from eastern Russia through W. Siberia to lake Baikal, South to Holland, Germany, Balkans, Black sea, Kirghiz steppes and yarkand.

Remarks : Observed it on the bank of the river, Phuleswar, near Baghmara, the South Garo Hills.

Genus ***Nettapus*** Brandt, 1836

30. ***Nettapus coromandelianus coromandelianus*** (Gmelin)

1789. *Anas coromandelianus* Gmelin, 1789, Syst.Nat., 1(2): 522 (Coromandel = Tamil Nadu, India).

1978. *Nettapus coromandelianus coromandelianus,* Ali and Ripley,vol. 1 : 190.

Common name : Cotton Teal or Quacky-duck (English) and Girja (Hindi).

Material examined : Nil

Diagnostic characters : In breeding male, crown blackish brown, back blackish-brown glossed with purple and green; black collar round the base of neck; wing with white wing-bar. In female, the colouration duller and browner with less contrasty white; wing-bar less prominent, eye with a dark line.

Distribution : India : Meghalaya (Ri-Bhoi Hills district): Throughout the Indian Union except in Kerala, Punjab and Rajasthan. Elsewhere : Bangladesh, Pakistan, Nepal, Burma (Myanmar), Sri Lanka, China, Malay and East Indies.

Remarks : Observed it at Barapani, the Ri-Bhoi Hills.

Genus ***Mergus*** Linnaeus, 1758

31. ***Mergus marganser merganser*** Linnaeus

1758. *Mergus merganser* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 129 (Swedcen).

1978. *Mergus merganser merganser,* Ali and Ripley, vol. 1 : 203.

Common name : Common Merganser or Goosander (English).

Material examined : Nil

Diagnostic characters : In male, head, crest and upper neck black glossed with metallic green and purple. Lower back, rump and uppertail-coverts grey vermiculated with white. Mantle glossy black. Tail silvery brown. Primaries black, Secondaries white. In female, head, crest and neck dark chestnut and cinnamon-brown. Chin and upper throat white.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts): throughout northern India. Elsewhere Pakistan.

Remarks : Hume (1888, p. 347) observed this bird on the streams of the Garo and Khasi Hills.

Order FALCONIFORMES

Family ACCIPITRIDAE

Key to the genera of the family Accipitridae

1. Head and neck bare ..... ***Sarcogyps***

   Head and neck feathered 2

2. Tarsus feathered infront and behind 11

   Tarsus naked or partially feathered 3

3. Upper mandible with two sharply pointed conical "teeth" ..... ***Aviceda***

   Upper mandible without teeth 4

4. Tarsus long, two or more times length of bill from tip to gape 5

Tarsus short, less than two times length of bill from tip to gape.....7

5. Feathers on sides of neck forming conspicuous ruff.....***Circus***

Ruff not present.....6

6. Nuchal crest absent or pointed.....***Accipiter***

Nuchal crest broad.....***Spilornis***

7. Front of tarsus covered with hexagonal scales.....8

Front of tarsus scutellate.....9

8. Size small; 2nd primany longest.....***Elanus***

Size larger; 3rd or 4th primary longest.....***Pandion***

9. Tail forked.....***Milvus***

Tail not forked.....10

10. Tarsus scutellated behind.....***Buteo***

Tarsus with hexogonal scales behind.....***Haliastur***

11. Primaries exceeding secondaries by less than length of tarsus.....***Spizaetus***

Primaries exceeding secondaries by more than length of tarsus.....***Aquila***

Genus ***Elanus*** Savigny, 1809

32. ***Elanus caeruleus vociferus*** (Latham)

1790. *Falco vociferus* Latham, *Index Orn.*, 1 : 46 (India = Coromandel Coast, ex. Sonnerat, apud, Hartert).

1978. *Elanus caeruleus vociferus*, Ali and Ripley, vol. 1: 212.

Common name : Blackwinged Kite (English) and Kapassi (Bengali and Hindi).

Material examined : Nil.

Diagnostic characters : Size less than the House Crow. Plumage mainly grey and white. Crown, nape, back, rump and tail-coverts pale ashy-grey. Tail white. Wing-shoulders with black patches.

Distribution : India : Meghalaya (East Garo Hills district) : Throughout the Indian mainland, Lakhshadweep Islands. Elsewhere : Pakistan, Nepal, Bangladesh, Sri Lanka, east to S. Yumnan, South to N. Tenasserim and Indochinese countries.

Remarks : Observed it near Rongrenggri, the East Garo Hills.

Genus ***Aviceda*** Swainson, 1836

33. ***Aviceda leuphotes leuphotes*** (Dumont)

1820. *Falcote leuphotes* Dumont, Diet. Sci. Nat., 16: 217 (Pondicherry, India.)

1978. *Aviceda leuphotes leuphotes,* Ali and Ripley, vol. 1 : 218.

Common name : Indian Blackcrested Baza (English).

Material examined : East Garo Hills district ; 1♂, Rongrenggiri, coll. R.K. Ghose, 7.vii. 1988.

Diagnostic characters : Size equal to Pigeon. Head, neck, back, rump, tail-coverts and tail black. Head with black long occipital crest, Foreneck and upper breast black; abdomen with black and chestnut bands.

Measurements : 1♂ : Wing 239, tail 133, bill 28 [from the skull].

Distribution : India : Meghalaya (East Garo Hills district): Arunachal Pradesh, Assam, Karnataka, Kerala, Sikkim and West Bengal. Elsewhere : Bangladesh, Nepal and Sri Lanka.

Remarks : Godwin-Austen (1870. p. 93) obtained it near the head of the Jhiri River in the Khasi Hills and mentioned it as *Baza lophotes* Cuvier.

34. ***Aviceda leuphotes syama*** (Hodgson)

1836. *Baza syama* Hodgson, *J. Asiat. Soc. Beng.* 5: 777 (Lower rigion of Nepal.

1978. *Avicada leuphotes syama,* Ali and Ripley, vol. 1 :220.

Common name : Burmese Blackcrfested Baza (English).

Material examined : East Garo Hills district : 1♂, Rongengiri, coll. A. K. Mondal, 7. vii. 1988.

Diagnostic characters : Head with a black occipital crest, chin and throat rufous and white. Head rufous and black. Band across chest black.

Measurementsd : 1♂ : Wing 235, tail 145, bill 28.

Distribution : India : Meghalaya (East Garo Hills district): Arunchal Pradesh, Assam, Madhya Pradesh, Manipur, Sikkim and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), Nepal and Sri Lakna.

Genus ***Milvus*** Lacepede, 17[illegible]

35. ***Milvus miggrans govinda*** Sykes

1832. *Milvus govinda* Sykes, *Proc. Zool. Soc. Lond :* 81 (Dukhun=Deccan, India).

1978. *Milvus migrans govinda,* Ali and Ripley, vol. 1 : 227.

Common name : Pariah Kite (English), Cheel (Hindi) and Doreng (Garo).

Material examined : Nil.

Diagnostic characters : Head, back and tail dark fulvous brown. Bill black, legs and feet yellow. Claws black. Tail deeply forked.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the Indian Union excluding Nicobar Islands. Elsewhere: Bangladesh, Burma (Myanmar), Malaysia (occasional), Nepal, Pakistn and Sri Lanka.

Remarks : Observed this bird near Phulbari, the West Garo Hills. Godwin Austen (1870, p.93) remarked. "This bird is not a visitant to Cherra, until rains begin to cease early in September"

36. ***Milvus migrans lineatus*** (Gray)

1831. *Haliaetus lineatus* J.E. Gray, in Hardwicke, *Ill. Ind. Zool.,* 1(8) : 1, pl. 18 (China).

1978. *Milvus migrans lineatus* Ali and Ripley, vol. 1 : 229.

Common name : Large Indian kite (English) and Cheel (Hindi).

Material examined : Nil.

Diagnostic characters: Head, back and tail dark fulvous brown. Bill black, legs and feet nearly white. Claws black. Tail deep forked. A conspicuous white underwing-patch. Underparts paler, without rufous-tinge.

Distribution : India : Meghalaya (East Khasi Hills district): Andhara Pradesh, Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh and West Bengal. Elsewhere : Burma (Myanmar), Hainan and Indochina."Breeds in W. Siberia from about lat. 58° N. east to transbaikalia and Japan, south to Transcaspia, Turkestan and N. China" (Peters).

Remarks : Hume (1888,p. 15) reported it from Shillong, the East Khasi Hills and listed it as *Milvus melanotis* Temminck and Sehl.

Genus ***Haliastur*** Selby, 1840

37. ***Haliastur indus indus*** (Boddaert)

1783. *Falco Indus* Boddaert, *Table Pl. enlum* : 25 (Pondicherry, India).

1978. *Haliastur indus indus,* Ali and Ripley, vol. 1 : 230.

Common name : Brahminy Kite (English) and Brahminy Cheel (Hindi).

Material examined : Nil.

Diagnostic characters : Head, neck, upper back and breast white; lower back, wings abdomen and tail rusty red or deep chestnut. Tips of wings black.

Distribution : India : Meghalaya (West Garo Hills and Khasi Hills districts) : Throughout the Indian Union excluding Nicobar Islands. Elsewhere : Bangladesh, Pakistan, Nepal, Burma (Myanmar), China, Sri Lanka, Thailand and Vietnam.

Remarks : Noticed it near Phulbari, the West Garo Hills. Godwins Austen (1870, p.93) recorded it from the Khasi Hills.

Genus ***Accipiter*** Brisson, 1760

38. ***Accipiter gentilis schvedowi*** (Menzbier)

1882. *Astur palumbarius schvedowi* Menzbier, *Orn. Geogr. Eur. Russl.:* 439 (Transbaikalia).

1978. *Accipiter gentilis schvedowi,* Ali and Ripley, vol. 1: 233.

Common name : Eastern Goshawk (Engliah) and ♂ Farra, ♀ Baaz (Hindi).

Material examined : Nil.

Diagnostic characters : Back and wings dark grey, darker on crown, nape, sides of head and neck. Supercilium and edge of forehead white. Underparts white, cross-barred with black narrowly on body, broadly on tail. Female larger in size.

Distribution : India: Meghalaya (East Khasi Hills district): Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Gujarat, Sikkim and Uttar Pradesh. Elsewhere : Pakistan, Central Asia from Barnaul and Krasnoyarsk to Yakutsk and the Aldan river, south to the Tien Shan, Altai mountains and the Amur river (Peters).

Remarks : Hume (1888, p.7) collected this bird from Shillong, the East Khasi Hills and listed it as *Astur palumbarius* Linnaeus.

39. ***Accipiter badius dussumieri*** (Temminck)

1824. *Falco dussumieri* Temminck, *Pl. Col. Livr.* : 52, text to pl. 308 (adult), pl. 336 (immature) (Bengal = West Bengal, India).

1978. *Accipiter badius dussumieri,* Ali and Ripley, vol. 1 : 235.

Common name:Indian Shikra (English) and Sikra (Hindi).

Material examined: Nil.

Diagnostic characters : Size smaller than the House crow. Head and back asky blue grey; breast barred with white and rusty brown, throat with median grey stripe. Long tail with multibanded; female slightly larger and dark smoky brown.

Distribution : India : Meghalaya (Garo Hills and East Khasi Hills districts) : Throughout India except Assam, eastern India and Kerala. Elsewhere: Nepal, Bangladesh and Pakistan.

Remarks : Hume (1888, P. 7) reported it from Shillong, the East the Khasi Hills and mentioned it as *Astur badius* Gmelin, Goodwin-Austen(1874, P. 142) reported it from the "Foot of the Garos"

40. ***Accipiter trivirgatus indicus*** (Hodgson)

1836. *Astur indicus* Hodgson, Bengal sporting Mag., 8 : 177 (Nepal).

1978. *Accipiter trivirgatus indicus,* Ali and Ripley, vol. 1: 240.

Common name : North Indian Crested Goshawk (English).

Material examined : Nil.

Diagnostic characters : Size slightly bigger than the House Crow. Forehead dark brown. Crown and nuchal crest blackish grey. Throat white. Breast white broadly streaked. Belly barred with rich rufous-brown. Undertail-coverts white. Tail with four dark brown bars. Female larger in size.

Distribution : India : Meghalaya (Khasi Hills) : Andhra Pradesh, Assam, Bihar, Madhya Pradesh, Orissa, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Indochina, Malay Peninsula, Nepal, Taiwan and Thailand.

Ramarks : Godwin Austen (1870, P.92) collected it from Asalu, the North Cachar Hills and listed it as *Tinnunculus alaudarius* Briss.

41. ***Accipiter nisus nisosimilis*** (Tickell)

1833. *Falco Nisosimilis* Tickell, *J. Asiat. Soc. Beng.,* 2 : 571 (Marcha, Borabhum, Barahabhum, Purulia dist., West Bengal, India).

1978. *Accipiter nisus nisosimilis,* Ali and Ripley, vol. 1 : 243.

Common name : Asiatic Sparrow-Hawk (English) and Basha ♀, Bashin ♂ (Hindi).

Material examined : Nil.

Diagnostic characters : Size slightly smaller than the House Crow. In male, legs slender and longer; a white supercilium. Tail with four or five blackish bands. Female larger than the male, more brown, back less grey and below paler.

Distribution : India : Meghalaya (South Garo Hills district): Throughout the Indian Union except the Nicobar islands and Lakshadweep and Minicoy islands. Elsewhere : Bangladesh, Burma (Myanmar), China, Nepal, and Pakistan. Breeds in N. and C. Asia from Turkestan to the sea of okhotsk, Japan, N. China and E. China south to the Yonghtse. Winters to Burma (Myanmar) and S. China.

Remarks : Observed it near Baghmara, the South Garo Hills.

42. ***Accipiter nisus melaschistos*** Hume

1869. *Accipiter melaschistos* Hume, *Rough Notes. March :* 128 (Interior of the Himalays).

1978. *Accipter nisus melaschistos,* Ali and Ripley, vol. 1 : 245.

Common name : Indian Sparrow-Hawk (English) and Basha ♀, Bashin ♂ (Hindi).

Material examined : Nil.

Diagnostic characters : Head, neck and back darker slate. Throat, breast and belly more rufous; tail with four to five blackish bands.

Distribution : India : Meghalaya (East Khasi Hills district): Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), Nepal and Pakistan.

Remarks : Hume (1888, p.8) obtained it from Shillong, the East Khasi Hills and listed it as *Accipiter nisus* Linnaeus.

Genus ***Buteo*** Lacepede, 1799

43. ***Buteo buteo japonicus*** (Temminck and Schlegel)

1844. *Falco buteo japonicus* Temminck and Schlegel, *in Siebold's Fauna Jap.*, Aves : 16 (Japan).

1978. *Buteo buteo japonicus,* Ali and Ripley, vol. 1 : 255.

Common name : Buzzard (English) and chuhamar (Hindi).

Material examined : Nil.

Diagnostic characters : So many phases occur. In one of these, head creamy brown, eye with a black marking; legs and feet yellow. Cere yellow.

Distribution : India : Meghalaya (Khasi Hills district): Throughout the Indian Mainland. Elsewhere : Nepal, Bhutan, Bangladesh, Sri Lanka, Burma (Myanmar) and China. Breeds in Asia from E. Turkestan and the Upper Yenessi north to Dauria and Lake Baikal, east to Ussuriland, South to the Himalayas. Manchuria, Korea and Japan.

Remarks : Hume (1888, p.12) obtained it from the Khasi Hills and listed it as *Buteo plumipes* Hodgson.

Genus ***Spizaetus*** Vieillot, 1816

44. ***Spizaetus cirrhatus limnaeetus*** (Horsfield)

1788. *Falco Limnaeetus* Horsfield, *Trans. Linn. Soc. Lond.*, 13(1) : 138 (Java).

1978. *Spizaetus cirrhatus limnaeetus*, Ali and Ripley, vol. 1: 261.

Common name : Indian Crested Hawk-Eagle (English) and Shah baaz (Hindi).

Material examined : Nil.

Diagnostic characters : Crown with crested head. Back and wings brown. Underparts white, with narrow black longitudinal streaks on throat and broad chocolate streaks on breast. Legs long, slender and feathered. Female larger.

Distribution : India : Meghalaya (Khasi Hills district): Throughout northern India from Himachal Pradesh to Arunachal Pradesh, Assam and Manipur. Elsewhere : Burma (Myanmar), Indochinese countries, Nepal, Malaya Peninsula, Philippine Islands and Thailand.

Remarks : Godwin-Austen (1870, p.93) obtained this bird from the Khasi Hills and listed it as *Limnaetus caligatus* Raffl.

Genus ***Aquila*** Brisson, 1760

45. ***Aquila rapax nipalensis*** Hodgson

1833. *Aquila nipalensis* Hodgson, *Asiat. Res.*, 18(2): 13. pl. 1 (Nepal).

1978. *Aquila rapax nipalensis*, Ali and Ripley, vol. 1 : 278.

Common name : Eastern Steppe Eagle (English) and Funiz (Hindi).

Material examined : Nil.

Diagnostic characters : Back deep blackish brown, nape with a rufous patch, two pale bars on wing. Bill black, cere deep yellow, legs and feet dull yellow.

Distribution : India : Meghalaya (East Khasi Hills district): Andhra Pradesh, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, maharashtra, Orissa, Rajasthan, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar) and China. Breeds from Alai to Mongolia and SE. Siberia, South to NW. India and the Himalayas.

Remarks : Hume (1888, p.8) obtained a single specimen from Shillong, the East Khasi Hills and listed it as *Aquila nipalensis* Hodgson.

46. ***Aquila pomarina hastata*** (Lesson)

1834. *Morphnus hastatus* Lesson, in Belanger, *Voy. Ind.-Orient., Zool.*: 217 (Bengal)

1978. *Aquila pomarina hastata*. Ali and Ripley. vol. I : 281.

Common name : Lesser Spotted Eagle (English) and Pahari teesa (Hindi).

Material examined : Nil.

Diagnostic charactgers : Back dark blackish brown with purplish reflection on mantle. Tail-coverts white. Underparts slightly paler.

Distribution : India: Meghalaya (Khasi Hills district): Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Sikkim, Tamil Nadu and Uttar Pradesh. Elsewhere : Bangladesh, Burma (Myanmar) and Nepal.

Remarks : Godwin- Austen (1870, p.265) obtained this bird from the plateau near Nongkulang, the Khasi Hills.

Genus ***Sarcogyps*** Lesson, 1842

47. ***Sarcogyps calvus*** (Scopoli)

1786. *Vultur calvus* Scopoli, *Del. Faun.* Insurb. et. *Flor. Insurb.* 2: 85 (Pondicherry, ex. Sonnerat).

1978. *Sarcogyps calvus* Ali and Ripley, vol. 1 : 296.

Common name : Indian Black Vulture (English) and Bhaonra (Hindi).
Material examined : Nil.

Diagnostic characters : Naked head, neck, thighs and legs deep yellowish red; breast and thigh-patches white.

Distribution : India : Meghalaya (Khasi Hills district): Throughout the Indian Union. Elsewhere : Pakinstan, Nepal, Bangladesh, Burma (Myanmar), Thailand, Malay Peninsula and Vietnam.

Remarks : Godwin-Austen (1870. P.265) reported it from chatak the North Cachar Hills and listed is as Otogyps calvus Scopli.

Genus ***Circus*** Lacepede, 1799

48. ***Circus macrourus*** (S.G. Gmelin)

1770. *Falco macrourus*, S. G. Gmelin, *Reise d. Russl., th.* 1 : 48 (Voronezh, Southern Russia).

1978. *Circus macrourus,* Ali and Ripley, vol. 1 :319.

Common name : Pale Harrier (English) and Pattai (Hindi).

Material examined : Nil.

Diagnostic characters : In male, back ashy-grey, tip of wings, black; throat, breast and belly pure white; tail long white cross-barred with grey. In female, back umber brown with prominent pale rufous.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the Indian Union. Elswehere : Bangladesh, Burma (Myanmar), Nepal, Pakistan and Sri Lanka; in Africa, from the Sudan to Cape Province. Breeds from the Baltic Sea provinces east to Tarbagatai and the Tian Shans, South to Rumania, S. Russia and Ferghana.

Remarks : Observed it near Tura, the West Garo Hills.

49. ***Circus aeruginosus aeruginosus*** (Linnaeus)

1758. *Falco aeruginosus* Linnaeus, *Syst. Nat.*, ed. 10, 1: 91 (Europe, restricted type locality, Sweden).

1978. *Circus aeruginosus aeruginosus*, Ali and Ripley, vol. 1: 324.

Common name : Marsh Harrier (English) and Safed sira (Hindi).

Material examined : Nil.

Diagnostic characters : In male, back ashy-grey, tip of wings black; throat, breast and belly pure white. Tail long white cross-barred with grey. In female, back umber brown whith prominent pale rufous.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the Indian Union except Nicobar Islands. Elsewhere : Africa, Bangladesh, Burma (Myanmar), China, Japan, Maldive Islands, Malay Peninsula. Nepal, Pakistan, Philippines and Sri Lanka. Breeds from S. Sweden and Denmark east to the Yenesei, south to the Mediterranean. Turkestan and Mongolia.

Remarks : Seen it near Barangapara, the West Garo Hills.

Genus ***Spilornis*** G.R. Gray, 1840

50. ***Spilornis cheela burmanicus*** Swann

1920. *Spilornis cheela burmanicus* Swann, *Syn. List. Accipitr.:* 81 (Jobin, Thayetmyo, Burma = Myanmar).

1978. *Spilornis cheela burmanicus*, Ali and Ripley, vol. 1 : 333.

Common name : Burmese Crested Serpent Eagle (English)

Material examined : Nil.

Diagnostic characters : Size larger than the kite. Book dark brown; head with nuchal crest. Breast and belly paler brown, ocellated and finely barred with white and blackish. White spots on lower plumage larger and more conspicuous. Terminal black band on primaries narrower.

Distribution : India : Meghalaya (Khasi Hills district): Assam, Andaman Islands and Tripura. Elsewhere : Burma (Myanmar) and Thailand.

Remarks : Hume (1888, p.11) reported this bird from the Khasi Hills and listed it as *Spilornis cheela.* Godwin- Austen (1870, p. 93) recorded it from the Khasi Hills.

Genus ***Pandion*** Savigny, 1809

51. ***Pandion haliaetus haliaetus*** (Linnaeus)

1758. *Falco Haliaetus* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 91 (Europe, restricted type locality, Sweden ex Fn. Suec.).

1978. *Pandion haliaetus haliaetus*, Ali and Ripley, vol. 1: 336.

Common name : Osprey (English) and Machhmanga (Hindi).

Material examined : Nil.

Diagnostic characters : Size smaller than the kite, back dark brown; head with tufted feathers of white streaking. Throat, breast and belly white, a conspicuous broad, brown band across upper breast; behind eye, a blackish band.

Distribution : India : Meghalaya (Soutrh Garo Hills district): Throughout the Indian Union except Arunachal Pradesh, Mizoram and Nagaland. Elsewhere : Bangladesh, Burma (Myanmar), Malay Peninsula, Nepal, Pakistan, Philippines, Sri Lanka, S. Africa, Sunda Islands and Thailand. Breeds in Europe and Asia from Scotland (Formerly) and Lapland east to Kamchatka and Japan, South to Spain, N. Africa, Mediterranean islands, Greece, Red Sea coasts, S. Arabia and S. China.

Remarks : Observed it near Siju Cave, the South Garo Hills.

Family FALCONIDAE

Key to the genera of the family Falconidae

Wings long and pointed, tail Slightly rounded.....***Falco***

Wings long and rounded, tail nearly square .....***Microhierax***

Genus ***Microhierax*** sharpe, 1874

52. ***Microhierax caerulescens caerulescens*** (Linnaeus)

1758. *Falco caerulescens* Linnaeus, *Syst. Nat.*, ed. 10, 1: 88 (Asia = Bengal, ex Edwardss, pl. 108).

1978. *Microhierax caerulescens caerulescens,* Ali and Ripley, vol. 1: 338.

Common name : Himalayan Redbreasted Falconet (English).

Material examined : Nil.

Diagnostic characters : Size equal to Bulbul. Back glossy black; forehead, sides of face and supercilium white. Eye with a black band, a white collar on hind neck. Chin, throat, thighs and undertail-coverts deep ferruginosus. Belly and vent rusty white.

Distribution : India : Meghalaya (Garo Hills district): Assam, Bihar, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Nepal and Bhutan.

Remarks : Hume (1888, p.6) obtained it from the Garo Hills and mentioned it as *Hierax eutolmus* Hodgson.

Genus ***Falco*** Linnaeus, 1758

53. ***Falso subbuteo centralasiae*** (Buturlin)

1911. *Hypotriorchis subbuteo centralasiae* Buturlin, *Orn. Mitt.*, 2: 175, new name for *Falco subbuteo cyanescens* Lonnberg, 1905, *Ark. Zool.*, 6(9) : 6 (Baimgol, Tianshan) nec *Falco cyanescens* Vieillot.

1978. *Falco subbuteo centralasiae,* Ali and Ripley, vol. 1 : 353.

Common name : Central Asian Hobby (English).

Material examined: Nil.

Diagnostic characters : Size equal to Dove. Back slaty grey; chin with moustachial streaks; throat, breast and belly rusty white, broadly streaked with black, undertail-coverts rufous.

Distribution : India : Meghalaya (West Garo Hills district) : Throughout the Indian Mainland except Kerala and Tamil Nadu. Elsewhere : Bangadesh, Iran and Pakistan.

Remarks : Observed it near Barangapara, the West garo Hills.

54. ***Falco tinnunculus tinnunculus*** Linnaeus

1758. *Falco tinnunculus* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 90 (Europe, restricted type locality, Sweden, *apud.* Hartert).

1978. *Falco tinnunculus tinnunculus,* Ali and Ripley, vol. 1: 365.

Common name : European Kestrel (English), Koruttia ♂ Narzi ♀ (Hindi) and Dogamdot (Garo).

Material examined : East Garo Hills district: 1 ♀, Songsak, N.E. Williamnagar, coll. A.K. Mondal, 3. xii. 1988.

Diagnostic characters : In male, crown nape and sides of neck ashy-grey finely streaked with blackish, cheek stripe blackish; rump and tail-coverts grey; tail tipped with white and a black subterminal bar. In female, back pale rufous, cross-barred with black, rump and tail tinged with grey.

Measurements : 1♀ : Wing 245, tail 193, bill 17.

Distribution : India : Meghalaya (East and West Garo Hills and East Khasi Hills districts): Throughout the Indian Mainland. Elsewhere : Bangladesh, Burma (Myanmar), China, Japan, Nepal, Pakistan,Sri Lanka and Tibet.

Remarks : Noticed it near at Kherapara, the West Garo Hills. Godwin-Austen (1870, P. 92) reported it from the Khasi Hills and listed it as *Tinnunculus alaudarius* Briss.

Order GALLIFORMES

Family PHASIANIDAE

Key to the genera of the Family Phasianidae

1. Wing over 400 mm. Tail-feathers with large metallic ocelli ..... ***Pavo***

   Wing under 400 mm. No ocellations on tail 2

2. Tail longer than the wing 3

   Tail shorter than the wing 4

3. A fleshy erect comb on the crown ..... ***Gallus***

   No fleshy comb on the crown ..... ***Lophura***

4. Wing under 120 mm ..... ***Coturnix***

   Wing over 120 mm 5

5. 1st Primary shorter than the 10th ..... ***Bambusicola***

   1st Primary equal or longer than the 10th 6

6. Tail less than half length of wing; spur absent ..... ***Arborophila***

   Tail more than half length of wing; spur present ..... ***Francolinus***

Genus ***Francolinus*** stephens, 1819

55. ***Francolinus francolinus melanotus*** Hume

1888. *Francolinus melanotus* Hume, *Stray Feathers,* 11: 305 (Sylhet, Cachar, Garo and Khasi Hills, and the Assam Valley).

1969. *Francolinus francolinus melanotus,* Ali and Ripley, vol. 2 : 24

Common name : Assam Black Partridge (English) and Kala teetar (Hindi).

Material examined : Nil.

Diagnostic characters : In male, back and tail jet black, scalloped, spotted and barred with white and fulvous, White cheek patches glistening. Collar chestnut. Throat, breast and abdomen jet black. Belly chestnut. Undertail-coverts unbarred deep chestnut. In female, similar to male but paler and browner. Cheek-patches and chestnut collar absent. Nape with a dull chestnut patch. Chin and throat buffy white.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts): Arunachal Pradesh, Assam and Manipur. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks: Hume (1888, p.304) remarked that "Distributed in all suitable localities throughout the Garo and Khasi Hills" and listd it as *Francolinus vulgaris* Steph.

56. ***Francolinus gularis*** (Temminck)

1815.*Perdix gularis* Temminck, *Pig* et *Gall.*, 3 : 401, 731 (Vicinity of Calcutta, West Bengal, India).

1969.*Francolinus gularis,* Ali and Ripley, vol. 2 : 33.

Common name : Swamp Partridge (English).

Material examined : Nil.

Diagnostic characters : Crown and nape brown. Back brown with rufous-brown patches transversely barred with buff. Supercilium and broader band below eye through eye-coverts buff. Tail largely chestnut with pale tips. Chin, throat and foreneck rusty red. Breast and abdomen brown with broad white longitudinal streaks edged with black. Tail-coverts pale rufous.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Assam, Bihar, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh and Nepal.

Remarks: Hume (1888, p.305) reported it from the "Garos and Cherapoonjee plateau"

Genus ***Coturnix*** Bonnaterre, 1791

57 ***Coturnix coturnix coturnix*** (Linnaeus)

1758.*Tetrao Coturnix* Linnaeus, *Syst. Nat.*, ed. 10,1: 161 (Europe, Asia, Africa, Restricted type locality, Sweden, ex. Fn. Svec.).

1969.*Coturnix coturnix coturnix,* Ali and Ripley, vol.2 : 37.

Common name : Grey Quail (English) and Ghagus bater (Hindi).

Material examined : Nil.

Diagnostic characters : Upper parts pale brown with conspicuous buff spear-shaped streaks and irregular mottling and barring of reddish brown and black. In male, chin and centre of throat black. Two dark bands curving up from base of throat to ear-coverts. Underparts creamy white. In female, chin and throat creamy buff, breast spotted with blackish.

Distribution : India : Meghalaya (East Khasi Hills district) :Throughout the subcontinent.

Remarks : Hume (1888, p.309) reported it from Shillong, the East Khasi Hills and listed it as *Coturnix communis* Bonn. Godwin-Austen (1872, p.142) reported it from "Cherra Punji"

58 ***Coturnix coromandelica*** (Gmelin)

1789.*Tetrao coromandelicus* Gmelin, *Syst.Nat.*, 1(2):764 (Coromandel Coast, Tamil Nadu, India)

1969.*Coturnix coromandelica,* Ali and Ripley, vol.2: 41.

Common name :Rain Quail (English).

Material examined : Nil.

Diagnostic characters : Size smaller than the Grey Quail. In male, back distinctly buff spear-shaped streaks and irregular mottling and baring of reddish brown and black. Chin and a line down centre of throat black; breast rufous buff, flanks brown longitudinally streaked with black. In female, chin and throat creamy buff. Breast spotted with blackish.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the Indian Mainland. Elsewhere : Bangladesh, Burma (Myanmar), Pakistan and Sri Lanka.

Remarks : Observed this bird near Kherapara, the West Garo Hills.

59. ***Coturnix chinensis chinensis*** (Linnaeus)

1766. *Tetrao chinensis* Linnaeus, *Syst. Nat.*, ed. 12, 1 : 277. (China and the Philippines = Nanking, China, ex. Edwards).

1969. *Coturnix chinensis chinensis*, Ali and Ripley, vol. 2 : 42.

Common name : Bluebreasted Quail (English).

Material examined : Nil.

Diagnostic characters : In male, upperparts brown, streaked, mottled and barred with buff, reddish brown and black. Forehead, supercilium and sides of neck slaty blue. Throat and upperbreast with bold black and white markings. Lower breast and abdomen slaty blue. Undertail-coverts chestnut. In female, breast and flanks barred with blackish.

Distribution : India : Meghalaya (East Khasi Hills district) : Throughout the subcontinent except Gujarat, Jammu & Kashmir, Haryana, Punjab and Rajasthan. Elsewhere : Bangladesh, Burma (Myanmar), China, Indochinese countries, Kampuchia Hainan and Taiwan.

Remarks : Godwin-Austen recorded it from Cherrapunji, the East Khasi Hills and Hume (1888, p. 310) reported it from Shillong, the East Khasi Hills, and mentioned it as *Excalfactoria chinensis* Linnaeus. Baker (1907, p.971) recorded it from the Khasi Hills

Genus ***Arborophila*** Hodgson, 1837

60. ***Arborophila atrogularis*** (Blyth)

1850. *Arboricola atrogularis* Blyth, *J. Asiat. Soc. Beng.*, 18(2): 819 (Assam, Sylhet and Arakan).

1969. *Arborophila atrogularis,* Ali and Ripley, vol. 2 : 62.

Common name : Whitecheeked Hill Partridge (English).

Material examined : Nil.

Diagnostic characters : Back light olive-brown stippled and barred with black. Wing barred and mottled with black and rufous. Forehead and supercilium grey, crown olive-brown. Nape rufous, broadly spotted with black. Cheeks white, running behind into rufous buff ear-coverts. Chin and throat black diffusing through black and white into grey of breast and flanks. Abdomen grey, centre whitish.

Distribution : India : Meghalaya (Garo Hills district) : Assam, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Hume (1888, p. 306) reported this bird from "Western slopes of trhe Garos" as *Arboricola atrogularis* Blyth.

Genus ***Bambusicola*** Gould, 1863

61. ***Bambusicola fytchii hopkinsoni*** Godwin-Austen

1874. *Bambusicola hopkinsoni* Godwin- Austen, *Proc. Zool. Soc. Lond.* : 44 (Khasia Hills, Assam).

1969. *Bambusicola fytchii hopkinsoni,* Ali and Ripley, vol. 2 : 64.

Common name : Assam Bamboo Partridge (English).

Material examined : Nil.

Diagnostic characters : Upper parts grey brown, broadly streaked with chestnut and spotted with blackish chestnut in scapular region. Lower back, rump and tail vermiculated with grey-brown. Wing chestnut-brown. Chin, throat and foreneck rufous buff. Breast chestnut spotted and streaked with white and grey.

Distribution : India : Meghalaya (Garo Hills and East Khasi Hills districts) : Assam, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Hume (1888, p. 308) reported this bird from the Garo Hills and from Shillong, the East Khasi Hills and listed it as *Bambusicola fytchii* Anders.

Genus ***Lophurus*** Temminck, 1813

62. ***Lophura leucomelana lathami*** (J.E. Gray)

1829. *Phasianus lathami* J. E. Gray, ex Griffith, Cuvier, *Anim. Kingd.*, 8(Aves, 3) : 26 (Sylhet, Bangladesh).

1969. *Lophura leucomelana lathami,* Ali and Ripley, vol. 2:99.

Common name : Blackbreasted Kaleej Pheasant (English) and Domisal (Garo).

Material examined : East Garo Hills district : 1 ♂ and 1 ♀, Rangrenggiri, coll. H. Khajuria, 24 and 29.i.1957.

Diagnostic characters : In male, back glossy blue-black with purple sheen. Breast entirely black glossed with steel blue and purple, the feathers rounded. Crown with black crest, tail shorter and straight. In female, crown with upright crest, tail short with central rectrices very finely and conspicuously streaked with black which appears plain chestnut.

Measurements :	Wing	Tail	Bill
1 ♂	216	216	36
1 ♀	226	153	40

Distribution : India : Meghalaya (East Garo Hills district) : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere: Bangladesh, Bhutan and Burma (Myanmar).

Genus ***Gallus*** Brisson, 1760

63. ***Gallus gallus murghi*** Robinson & Kloss

1920. *Gallus ferrugineus murghi* Robinson & Kloss, *Rec. Indian Mus.*,, 19 : 14 and 15 (Chirala, Gaya District, Bihar).

1969. *Gallus gallus murghi*, Ali and Ripley, vol. 2 : 102.

Common name : Indian Red Jungle fowl (English), Ban murgha (Hindi) and Dogrik (Garo).

Material examined : East Garo Hills district : 1 ♂ Rangrenggiri, coll. H. Khajuria, 25.i. 1957, 1 ♀ Tasek, Songsak Reserve Forest, coll. R.K. Ghose, 5.vii. 1988. Ri-Bhoi Hills district : 1 ♂, Nongpoh, coll. H.L. Hiteshi, 13.v. 1949.

Diagnostic characters : In male, back with orange-red and yellow hackles on neck and rump; underparts uniformly black, wings with bright blue wing-patches. In female, back reddish brown finely vermicluated with buff and black; underparts light rufous-brown.

Measurements :	Wing	Tail	Bill
2 M :	215,222	218,322	32,33
1 V :	205	145	29

Distribution : India : Meghalaya (East Garo Hills district and Ri-Bhoi Hills district): Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu & Kishmir, Madhya Pradesh, Orissa, Sikkim, Uttar Pradesh and West Bengal. Elsewhere: Bangladesh and Pakistan.

Genus ***Polyplectron*** Temminck, 1813

63a. ***Polyplectron bicalcaratum bakeri*** Lowe

1925. *Polyplectron bicalcaratum bakeri*, Ibis : 477.

1969. *Polyplectron bicalcaratum bakeri*, Ali and Ripley, vol. 2.

Common name : Peacock pheasant (English).

Diagnostic characters : India : Meghalaya (Garo Hills); Arunachal Pradesh; Manipur; Mizoram; Nagaland; Sikkim and West Bengal. Elsewhere : Bangladesh and Bhutan.

Genus ***Pavo*** Linnaeus, 1758

64. ***Pavo cristatus*** Linnaeus

1758. *Pavo cristatus* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 156 ('India Orientali, Zeylona'=India).

1969. *Pave cristatus* Ali and Ripley, vol. 2. 123.

Common name : Indian Peafowl (English) and Mayura (Hindi).

Material Examined : Nil.

Diagnostic characters : In male, lowerback light bronze green narrowly scalloped with black. Wings close-bar with black and buff. Uppertail-coverts elongated metallic bronze, green, boldly ocellated with purplish black-centred coppery discs or eye-spots. Head with fan shaped crest. Blue neck and breast. In female, uppertail-coverts not elongated. Lower neck metallic green. Adbomen buffy white.

Distribution : India : Meghalaya (Garo Hills district): Throughout the Indian Mainland.

Remarks: Hume (1888,p.300) reported it from Garo Hills.

Order GRUIFORMES

Family TURNICIDAE

Genus ***Turnix*** Bonnaterre,1791

65. ***Turnix sylvatica dussumier*** (Temminck)

1828. *Himipodius Dussumier* Temminck, *Pl. Col. livr.* 76, pl. 454, f. 2(Bangale=Bengal, West Bengal, India).

1969. *Turnix slyvatica dussumier*, Ali and Ripley, vol. 2: 128.

Common name : Little Bustard-Quail (English) and Dabki (Hindi)

Material examined : Nil.

Diagnostic characters : Upper parts irregularly barred rufous and black. Crown blackish brown with a whitish median line. Hindneck ferruginous scalloped with buff. Underparts white excepting breast which is brownish buff with black and chestnut spots on its sides.

Distribution : India : Meghalaya (Khasi Hills district) : Throughout the subcontinent except Himachal Pradesh and Jammu & Kashmir. Elsewhere : Bangladesh, Burma (Myanmar) and Pakistan.

Remarks : Baker (1907, p.972) reported it from the Khasi Hills as *Turnix dussumieri*.

66. ***Turnix suscitator plumbipes*** (Hodgson)

1837. *Coturnix plumbipes* 'Parbattiah'=Hodgson, *Bengal Sport, Mag.* 9 : 346 (Nepal).

1969. *Turnix suscitator plumbipes,* Ali and Ripley, vol. 2 : 132.

Common name : Northern Bustard-Quail (English) and Dobekrot (Garo).

Material examined : East Khasi Hills district : 1 ♂, Cherrapunji, coll. T.D. Soota, 9.ii. 1974.

Diagnostic characters : In male, back rufous-brown and black. Wing-coverts boldly spotted with black and buff. Chin and throat whitish. Upperbreast rusty buff banded with black. In female, colouration rich, larger in size.

Measurements : 1 ♂ : Wing 90, tail 30, bill 16.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Assam, Bihar, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Nepal and Burma (Myanmar).

Remarks : Hume (1888, p. 310) reported this bird from the Garo Hills and the Khasi Hills.

Family RALLIDAE

Key to the genera of the Family Rallidae

1. Bill from gape subequal or longer than the tarsus ..... ***Rallus***
   Bill from gape much shorter than tarsus 2
2. Frontal shield absent to slightly developed..... 3
   Frontal shield well developed..... 4
3. Quill second longest; first between fifth and seventh..... ***Porzana***
   Quill three to six longest; first shorter than eight..... ***Amaurornis***
4. Toes with membranous fringe divided into convex lobes..... ***Fulica***
   No lobate fringe on toes..... 5
5. Toes with a narrow straight- edged lateral fringe. Sexes alike..... ***Gallinula***
   Toes with fringes. Sexes not alike..... ***Gallicrex***

Genus ***Rallus*** Linnaeus, 1758

67. ***Rallus striatus albiventer*** Swainson

1838. *Rallus albiventer* Swainson, *Animals in Menageries* : 337 (India).

1969. *Rallus striatus albiventer,* Ali and Ripley, vol. 2 : 152.

Common name : Indian Bluebreasted Banded Rail (English).

Material examined : Nil.

Diagnostic characters : In male, back dark brown with irregular wavy white bands and spots. Head and sides of neck rufous chestnut. Chin and throat white; foreneck and breast ashy blue. Abdomen and

flanks blackish barred with white. In female, upperparts duller and underparts whitish.

Distribution : India : Meghalaya (East Khasi Hills district) : Throughout the Indian mainlands except Gujarat, Jammu & Kashmir, Punjab, Sikkim and Rajasthan. Elsewhere : Bangladesh and Sri Lanka.

Remarks : Baker (1907, p. 972) collected it from Shillong, the East Khasi Hills and listed it as *Hypotaenidia striata* Linnaeus.

Genus ***Porzana*** Vieillot, 1816

68. ***Porzana pusilla pusilla*** (Pallas)

1776. *Rallus pusillus* Pallas, *Reise Russ. Reichs* 3 : 700 (Dauria).

1969. *Porzana pusilla pusilla,* Ali and Ripley, vol. 2 : 160.

Common name : Eastern Baillon's Crake (English).

Material examined : Nil.

Diagnostic characters : Size equal to Grey Quail. Back rufescent olive-brown broadly streaked with dark brown. Scapulars, back, rump and uppertail-coverts with narrow white paint-like smears. Sides of head, neck and breast grey. Abdomen, belly, vent and undertail-coverts barred brown and white.

Distribution : India : Meghalaya (South Garo Hills district) : Throughout the Indian Union except Nicobar Islands. Elsewhere : Bangladesh, Burma (myanmar), China, Malay Archipelago, Nepal, the Philippines and Sri Lanka.

Breeds in C. and E. Asia from the upper to Amurland and Japan, South to Kashmir, Mongolia, N. China and Korea; Lower Himalayas in N. India.

Remarks : Observed this bird near Baghmara, the South Garo Hills.

Genus ***Amaurornis*** Reichenbach, 1853

69. ***Amaurornis fuscus bakeri*** (Hartert)

1917. *Porzana fusca bakeri* Hartert, *Nov. Zool.* 24 : 272 (Bhim Tal, Kumaon).

1969. *Amaurornis fuscus bakeri,*Ali and Ripley, vol. 2 : 164.

Common name : Northern Ruddy Crake (English).

Material examined : Nil.

Diagnostic characters : Back and wings dark olive-brown. Forehead, forecrown, supercilia and sides of face vinous-chestnut. Chin and centre of throat whitish; throat and lower breast vinous-chestnut. Abdomen and flanks olive-brown.

Distribution : India : Meghalaya (East Khasi Hills district) : Northern India from Jammu & Kashmir to Assam and Madhya Pradesh.

Remarks : Baker (1907, p.972) collected it from Shillong, the East Khasi Hills and listed it as *Amaurornis fusca* Linnaeus.

70. ***Amaurornis bicolor*** (Walden)

1872. *Porzana bicolor* Walden, *Ann. and Mag. Nat. Hist.*, 9(4): 47 (Rungbee, Darjeeling = Darjiling, Darjiling dist., West Bengal, India)

1969. *Amaurornis bicolor*, Ali and Ripley, vol. 2: 166.

Common name : Elwes's Crake (English).

Material examined : Nil.

Diagnostic characters : Back rufous-brown. Head and neck dark ashy grey. Tail black. Sides of head pale grey. Chin whitish. Breast, abdomen and belly dark ashy-grey.

Distribution : India : Meghalaya (East Khasi Hill district) : Arunachal Pradesh, Assam, Manipur and Sikkim. Elsewhere : Burma (Myanmar), Bhutan, China and Vietnam.

Remarks : Baker (1907, p.972) collected this bird from Shillong, the East Khasi Hills and listed it as *Amaurornis bicolor* Wald.

71. ***Amaurornis akool akool*** (Sykes)

1832. *Rallus Akool* Sykes, *Proc. Zool. Soc. Lond.* : 164 (Dukhun = Deccan, India).

1969. *Amaurornis akool akool*, Ali and Ripley, vol. 2: 167.

Common name : Brown Crake (English).

Material examined : Nil.

Diagnostic characters : Back, wings and tail dark olive-brown. Sides of head, neck and supercilia ashy-grey. Chin and centre of throat whitish. Rest of underparts ashy-grey.

Distribution : India : Meghalaya (Khasi Hills district): Andhra Pradesh, Assam, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Manipur, Maharashtra, Orissa, Rajasthan, Uttar Pradesh and West Bengal. Eslewhere : Bhutan and Nepal.

Remarks : Hume (1888, p. 328) reported this bird from the Khasi Hills and mentioned it as *Porzana akool* Sykes.

Genus ***Gallicrex*** Blyth, 1852

72. ***Gallicrex cinerea cinerea*** (Gmelin)

1789. *Fulica cinerea* Gmelin, *Syst. Nat.* 1(2): 702 (China, ex Latham).

1969. *Gallicrex cinerea cinerea*, Ali and Ripley, vol. 2 : 172.

Commom name : Watercock (English) and Kangra (Hindi).

Material examined : Nil.

Diagnostic characters : In non-breeding plumage, both sexes alike. Back dark brown broadly scalloped with fulvous. Underparts pale buffy brown with fine wavy darker bars. Yellowish horny shield on forehead. In breeding male, back, neck, throat, breast and tail black. Wings and abdomen black scalloped with grey. A bright red fleshy horny shield on forehead projecting above the crown. In breeding female, underparts less barred.

Distribution : India : Meghalaya (Khasi Hills district): Throughout the Indian main land except

Arunachal Pradesh, Manipur, Mizoram, Nagaland and Tripura.

Remarks : Baker (1907, p.972) recorded it from the Khasi Hills.

Genus ***Gallinula*** Brisson, 1760

73. ***Gallinula chloropus indica*** Blyth

1842. *Gallinula chloropus ? var. indicus Blyth, J. Asiat. Soc. Beng.*, 11 : 887 (Calcutta, Calcutta district, West Gengal, India).

1969.*Gallinula chloropus indica, Ali and Ripley,* vol. *2 : 175.*

Common name : Indian Moorhen (English) and Pani murghi (Hindi).

Material examined : Nil.

Diagnostic characters : Back and wings black, slaty grey and brown. Wings white bordered. Head, neck and breast slaty grey, paler and whitish on centre of abdomen. Undertail-coverts white with a black central patch.

Distribution : India : Meghalaya (Garo Hills district):Throughout the Indian mainland. Elsewhere : Bangladesh, Pakistan, Nepal, Sri Lanka, Burma (Myanmar), Thailand, Malay peninsula, Cambodia, Hainan, Taiwain, Ryukyu Islands, Tibet, China and Japan.

Remarks : Observed it near Baghmara, the South Garo Hills.

Genus ***Fulica*** Linnaeus, 1758

74. ***Fulica atra atra*** Linnaeus

1758. *Fulica atra* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 152 (Europe, restricted type locality Sweden, ex ref. to Fn. Svec.).

1969. *Fulica atra atra,* Ali and Ripley, vol. 2 : 180.

Commom name : Coot (English) and Dasari (Hindi).

Material examined : Nil.

Diagnostic characters : Entire plumage slaty black, wings with white edges. Ivory-white pointed bill and frontal shield covering forehead.

Distribution : India : Meghalaya (South Garo Hills district): Throughout the Indian mainland. Elsewhere : Arabia, Bangladesh, Celebes, Java, Nepal, Pakistan, Sri Lanka and Sudan.

Breeds in greater part of Europe and Asia South to N. Africa, Asia Minor, and Southern China; Azores and Iceland.

Remarks : Observed it near Siju Cave, the South Garo Hills.

Order CHARADRIIFORMES

Family JACANIDAE

Key to the genera of the Family Jacanidae

Frontal lappet at base of bill resting against forehead, primaries not attenuated.....***Metopidius***

No frontal lappet, 1st and 4th Primaries attenuated .....***Hydrophasianus***

Genus ***Hydrophasianus*** Wagler, 1832

75. ***Hydrophasianus chirurgus*** (Scopoli)

1786. *Tringa Chirurgus* Scopoli, *Del. Flor. et. Faun. Insubr., fasc.* : 92 ('In nova Guiana' =Luzon *ex* Sonnerat)

1969. *Hydrophasianus chirurgus,* Ali and Ripley, vol. 2 : 199.

Common name : Pheasant-tailed Jacana (English) and Piho (Hindi)

Material examined : Nil.

Diagnostic characters : Size equal to Grey Partridge. Back rump and underparts chocolate-brown. Tail pointed down-curved Pheasant-like. Face and foreneck white, hindneck pale silky golden yellow.

Distribution : India : Meghalaya (South Garo Hills district): Throughout the Indian mainland. Elsewhere : Bangladesh, Burma (Myanmar), China, Cambodia, Java, Malay Peninsula, Nepal, Pakistan, Philippines, Sri Lanka, Tariwan and Thailand.

Remarks : Observed it near Siju cave, the South Garo Hills

Genus ***Metopidius*** Wagler, 1832

76. ***Metopidius indicus*** (Latham)

1790. *Parra indica* Latham, *Index. Orn.*, 2 : 765 (India).

1969. *Metopidius indicus,* Ali and Ripley, vol. 2 : 201.

Common name : Bronzewinged Jacana (English).

Material examined : Nil.

Diagnostic characters : Back and wings metallic greenish bronze. Tail chestnut-red. A white stripe over eye to nape. Neck, breast and belly glossy black. Bill red at base, greenish yellow.

Distribution : India : Meghalaya (West Garo Hills district): Throughout India. Elsewhere : Bangladesh, Burma (Myanmar), Bhutan, Cambodia, Java, Malay Peninsula, Nepal, Pakistan, Sumatra, Thailand and Vietnam.

Remarks : Observed it near Kherapara, the West Garo Hills.

Family CHARADRIIDAE

Key to the genera of the subfamily Charadriinae

1. Tail-feathers grey or brown, outer tail-feathers white or white-tipped.....***Charadrius***
   Tail-feathers white with a broad black band on the distal half or with narrowly barred with dusky spots on margins of outer tail- feathers..... 2
2. Tail with narrowly barred. Black spotted.....***Pluvialis***
   Tail with a broad black band and often with a narrow white terminal band.....***Vanellus***

Genus ***Vanellus*** Brisson, 1760

77. ***Vanellus indicus indicus*** (Boddaert)

1783. *Tringa Indica* Boddaert, *Table Pl. enlum* : 150 (Goa, India, *ex* Daubenton, Pl. 807).

1969. *Vanellus indicus indicus,* Ali and Ripley, vol. 2 : 212.

Commom name : Redwattled Lapwing (English), Titori (Hindi) and Tetetot (Garo).

Material examined : Nil.

Diagnostic characters : Back and wings bronze-brown. Head, neck and breast black. A creamson fleshy wattles infront of each eye. A white band behind eyes running down sides of neck and wings to meet the white underparts. Calls : Oid-ye-do-it.

Distribution : India : Meghalaya (Ri-Bhoi Hills district): Throughout the Indian mainland. Elsewhere : Arabia, Afghanistan, Bangladesh, Bhatan, eastern Transcaspian regions, Iran, Iraq, Nepal and Pakistan.

Remarks : Observed it near Barapani, the Ri-Bhoi Hills.

78. ***Vanellus spinosus duvancelii*** (Lesson)

1826. *Charadrius duvancelii* Lesson, *Dict. Sci. Nat. ed. Leurault,* 42 : 38 (Calcutta, Calcutta district, West Bengal, India).

1969. *Vanellus spinosus duvancelii,* Ali and Ripley, vol. 2 : 216.

Common name : Spurwinged Lapwing (English).

Material examined : East Garo Hills district: 1 ♀, Rongrenggiri, coll. H. Khajuria, 24.i. 1957.

Diagnostic characters : Back, part of wings, neck and breast vinous-grey and sandy brown. Uppertail-coverts and tail white. Terminal half of tail black. Primaries and primary-coverts black; central secondaries white. Cheeks, chin and throat black bordered with white; centre of abdomen black. Rest of underparts white. Wings with long curved spur on the bend; forehead, crown and occipital crest black.

Measurement : 1 ♀: Wing 198, tail 90, bill 32 (from the skull).

Distribution : India : Meghalaya (East Garo Hills district): Andhra Pradesh, Assam, Bihar, Madhya Pradesh, Manipur, Orissa, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), China, Nepal, Thailand and Vietnam.

Genus ***Pluvialis*** Brisson, 1760

79. ***Pluvialis dominica fulva*** (Gmelin)

1789. *Charadrius fulvus* Gmelin, Syst. Nat., 1(2): 687 (Tahiti).

1969. *Pluvialis dominica fulva,* Ali and Ripley, vol. 2 : 222.

Common name : Eastern Golden Plover (English).

Material examined : Nil.

Diagnostic characters : In non-breeding (winter) : Head, back and wing mottled brown, white and golden yellow. Underparts whitish, breast mottled with brown, grey and yellow. Axillaries grey.

Distribution : India : Meghalaya (East Khasi Hills district) : Throughout the Indian Union. Elsewhere : Australia, Bangladesh, Bhutan, Burma (Myanmar), China (southern part), East Africa, Hawai Island, Indochinese countries, Malayasia, Nepal, Ocenia, Pacific coast of North America, Pakistan, Sri Lanka, and Thailand.

Remarks : Hume (1888, 313) received a specimen from Shillong, the East Khasi Hills.

Genus ***Charadrius*** Linnaeus, 1758

80. ***Charadrius dubius curonicus*** Gmelin

1789. *Charadrius curonicus* Gmelin, *Syst. Nat.*, 1(2): 692 (Kurland).

1869. *Charadrius dubius curonicus,* Ali and Ripley, vol. 2 : 231.

Common name : European Little Ringed Plover (English).

Material examined : Nil.

Diagnostic characters : Back sandy brown. Forecrown black. A black band from lores through eye to ear-coverts. A double collar on hindneck (a upper white, the lowr black); underparts white with a black pectoral band.

Distribution : India : Meghalaya (South Garo Hills district) : Throughout the Indian Union. Elsewhere : Pakistan, Nepal, Bhutan, Bangladesh, Sri Lanka, Burma (Myanmar), Thailand, Malay Peninsula, Indo-China, New Guinea, Bismarck Archipelago, apparantly also the greater and Lesser Sunda Islands.

Remarks : Observed it at Baghmara, the South Garo Hills.

81. ***Charadrius dubius jerdoni*** (Legge)

1880. *Aegialitis jerdoni* Legge, *Proc. Zool. Soc. Lond.* : 39 (Ceylon and middle India).

1969. *Charadrius dubius jerdoni*, Ali and Ripley, vol. 2 : 231.

Common name : Indian Little Ringed Plover (English) and Merwa (Hindi).

Material examined : Nil.

Diagnostic characters. : Smaller in size. Back sandy brown. Forecrown black. A black band from lores through eye to ear coverts. A double collar on hindneck (a upper white, the lower black); underparts white with a black pectoral band.

Distribution : India : Meghalaya (Ri Bhoi Hills district): Throughout Indian Union except Arunachal Pradesh, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh, Bismarck Archipelago, Burma (Myanmar), Indochina, Malay Penninsula, Nepal, New Guinea, Pakistan and Sunda Islands.

Remarks : Observed it at Barapani, the Ri-Bhoi Hills.

Key to the genera of subfamily Scolopacinae

1. Tibia feathered 2

   Tibia unfeathered 3

2. Tibia entirely feathered ..... ***Scolopax***

   Tibia partially feathered ..... ***Gallinago***

3. Toes partially webbed 4

Toes divided ..... ***Calidris***

4. No white on secondary coverts or upper tail-coverts ..... ***Philomachus***

White on upper tail-coverts and tip of secondary coverts .... ***Tringa***

Genus ***Tringa*** Linnaeus, 1758

82. ***Tringa totanus totanus*** (Linnaeus)

1758. *Scolopax Totanus* Linnaeus, Syst. Nat., ed. 10, 1: 145 (in Europe=Sweden).

1969. *Tringa totanus totanus,* Ali and Ripley, vol. 2 : 257.

Common name : Common Redshank (English) and chhota batan (Hindi)

Material examined : Nil.

Diagnostic characters : In non-breeding (winter) : Upperback greyish brown. Lower back and rump white. Tail white barred with brown. Upperparts white, breast finely streaked with brown. Bill straight slender, orange-red and black. White band on wings.

Distribution : India : Meghalaya (South Garo Hills district): Throughout the Indian Union. Elsewhere : Bangladesh, Malaya States, Nepal, Pakistan, Philippines, Sri Lanka and Sunda Islands. Breeds in central and eastern Asia to Transbaikalia and West Kansu.

Remarks : Observed it near Baghmara, the South Garo Hills.

83. ***Tringa stagnatilis*** (Bechstein)

1803. *Totanus stagnatilis* Bechstein, *Orn. Taschenb. Deutschl.*, 2 :292, pl.29 (Germany).

1969. *Tringa stagnatilis*, Ali and Ripley, vol.2 : 259.

Common name : Marsh Sandpiper or Little Greenshank (English).

Material examined : Nil.

Diagnostic characters : Upper back and forehead greyish brown, supercilium, sides of head, lower back and rump pure white.Underparts pure white, sides of breast more or less marked with brown. Bill almost straight and black. Legs very slender and greenish. Tail narrowly barred, brownish.

Distribution : India : Meghalaya : (West Garo Hills district): Throughout the Indian Union except Andaman and Nicobar Islands and Lakshadweep. Elsewhere : Africa, Arabia, Bangladesh, Burma(Myanmar), Indochinese countries, Pakistan, Sri Lanka, Sunda Islands and the Muluceas to Australia.

Breeds in S.E.Europe, C. and S. Russia and across middle Asia south of lat. 56° at least as far east as Transbaikalia, South to Turkestan and N. Mongolia.

Remarks : Seen it near Barangapara, the West Garo Hills.

84. ***Tringa nebularia*** (Gunnerus)

1767. *Scolopax nebularia* Gunnerus, in Leem *Beskr. Finm. Lapper* : 251 (District of Trondhjem, Norway).

1969. *Tringa nebularia*, Ali and Ripley, vol. 2 : 261.

Common name : Greenshank (English) and Timtima (Hindi).

Material examined : Nil.

Diagnostic characters : In non-breeding (Winter) : Upper back greyish brown; forehead, lowerback, rump and tail white. Tail with faint, almost invisible barring. Underparts white, greyish on foreneck and sides of head.

Distribution : India : Meghalaya (South Garo Hills district): Throughout the Indian Union. Elsewhere : Bangladesh, eastwards through South East Asia to Australia and New Zealand, Mediterranean countries, Africa, Maldive Islands, Sri Lanka, Pakistan and Nepal.

Remarks : Observed it on the bank of the river Phuleswar at Baghmara, the South Garo Hills.

85. ***Tringa ochropus*** Linnaeus

1758. *Tringa Ocrophus* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 149 (in Europa = Sweden).

1969. *Tringa ochropus*, Ali and Ripley, vol. 2 : 263.

Common name : Green Sandpiper (English).

Material examined : Nil.

Diagnostic characters : In non-breeding (winter) : Back dark brown glossed with bronze-green. Head and neck ashy brown. Rump and tail white. Tail faintly barred with blackish. Underparts whitish. Throat, breast and flanks finely streaked with brown.

Distribution : India : Maghalaya (East Garo Hills district) : Throughout India except Nicobar Islands, Mizoram, Nagaland, Tripura and West Bengal. Elsewhere : Africa (south to Angola and Kenya), Bangladesh, British Isles, Burma (Myanmar), Indochinese countries, Hainan, Mediterranean Region, Nepal, Pakistan, Philippines, Sri Lanka, Taiwan and Thailand.

Remarks : Seen it on the bank of the river Simsang, near Wiliamnagar, the East Garo Hills.

86. ***Tringa glareola*** Linnaeus

1758. *Tringa glareola* Linnaeus, *Syst. Nat.*, ed. 10, 1: 149 (in Europa = Sweden).

1969. *Tringa glareola*, Ali and Ripley, vol. 2 : 265.

Common name : Spotted Sandpiper (English) and Chupka (Hindi).

Material examined : Nil.

Diagnostic characters : In non-breeding (winter) : Upperback greyish brown and sepia-brown indistinctly spotted and marked with white. Supercilium whitish. Rump, tail and lower back white. Tail barred with blackish. Underparts whitish, pale dusky breast.

Distribution : India : Meghalaya (South Garo Hills district) : Throughout India including Andaman. Elsewhere : Bangladesh, Bhutan, Maldive Islands. Nepal, Pakistan and Sri Lanka.

Breeds in North Europe and North Asia east to the Amur River Kamchatka and northern Kurile Islands. Wintering throughout Africa and S.E. Asia, Japan, Philippines, Malaya Archipelago to Australia.

Remarks : Observed it near Siju cave, the South Garo Hills.

87. ***Tringe hypoleucos hypoleucos*** Linnaeus

1758. *Tringa hypoleucos:*Linnaeus, *Syst. Nat.*, ed. 10, 1: 149.(in Europe =Sweden).

1969. *Tringa hypoleucos* Ali and Ripley, vol.2 : 271.

Common name : Common Sandpiper (English).

Material examined : Nil.

Diagnostic characters : In non-breeding (Winter) : Back olive-brown. Rump and tail brown. Outer rectrices white. Sides of head and neck ashy-brown, streaked darker. Supercilium broad and pale. Underparts white with a broad diffused dusky band across breast.

Distribution : India : Meghalaya (South Garo Hills district) : Throughout the Indian Union. Elsewhere : Africa, Bangladesh, Bhutan, Burma (Myanmar), Malaya Archipelago to Australia, Nepal, Philippines, Sri Lanka, S.E. Asia north to S. China and Taiwan.

Remarks : Observed it near Baghmara, the South Garo Hills.

Genus ***Gallinago*** Brisson, 1760

88. ***Gallinago solitaria solitaria*** Hodgson

1831. *Gallinago solitaria* Hodgson, Cleanings in Science, 3 : 238 (Nepal).

1969. *Gallinago solitaria solitaria* Ali and Ripley, vol. 2 : 278.

Common name : Eastern Solitary Snipe (English) and Ban Chaha (Hindi).

Material examined : Nil.

Diagnosis characters : Crown with longitudinal stripes and median pale band. Entire plumage variegated brown, black, rufous, fulvous and white. Bill slender and straight.

Distribution : India : Meghalaya (Garo and Khasi Hills districts): Assam, Himachal Pradesh, Jammun & Kashmir, Kerala, Manipur, Orissa, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Nepal and Pakistan.

Breeds in Central Asia at high elevations from Tarbagatai, the Sayan and Khangai Mts. South to the Tian Shans and the Himalayas, east to Koko Nor and Upper Burma.

Remarks : Hume (1888, p. 319) reported it from both the Garo and Khasi Hills.

89. ***Gallinago nemoricola*** Hodgson

1836. *Gallinago nemoricola* 'EJ' = Hodgson, *Proc. Zool. Soc. Lond. :* 8 (Nepal)

1969. *Gallinago nemoricola*, Ali and Ripley, vol. 2 : 280.

Common name : Wood snipe (English) and Chaha (Hindi).

Material examined : Nil.

Diagnostic characters : Back dark brown with black rufous and buff streaks. Breast fulvous barred with brown; belly and vent white closely barred with brown.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Andhra Pradesh, Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal, Pakistan, Sri Lanka and Tibet.

Remarks : Hume (1888, p. 318) remarked "It occurs in both the Garo and Khasi Hills"

90. ***Gallinago stenura*** (Bonaparte)

1830. *Scolopax stenura* 'Kuhl' = Bonaparte, *Ann. Stor. Nat. Bologna,* 4: 335 (Sunda Islands).

1969. *Gallinago stenura,* Ali and Ripley, vol. 2 : 282.

Common name : Pintail Snipe (English) and Chaha (Hindi).

Material examined : Nil.

Diagnostic characters : Crown with longitudinal stripes. Supercilium prominent. Borders of scapulars rufous. Outertail-feathers narrow and stiff. Underwing-coverts much heavily and darkly barred. Legs and feet greyish green.

Distribution : India : Meghalaya : (South Garo Hills district) : Throughout the Indian Union except Lakshadweep. Elsewhere : Bangladesh, Bhutan, China, Hainan, Indochinese countries, Nepal, Pakistan, Sri Lanka, Sunda Islands, Taiwan and Timor.

Breeds in E. Siberia west to the Yenisey, north to *c* lat. 67° South to E. Turkestan, N. Tibet, the upper Hoanng-Ho, Amurland and Sakhalin.

Remarks : Observed it near Siju Cave, the South Garo Hills.

91. ***Gallinago gallinago gallinago*** (Linnaeus)

1758. *Scolopax gallinago* Linnaeus, *Syst. Nat.,* ed. 10, 1 : 147 (in Europa = Sweden).

1969. *Gallinago gallinago gallinago,* Ali and Ripley, vol. 2 : 287.

Common name : Fantail Snipe (English).

Material examined : Nil.

Diagnostic characters : Back dark brown, heavily streaked with black rufous and buff. Underparts whitish. Three outer pairs of tail-feathers marked with dusky spots and bars. Bill straight, slender,. yellowish horny on basal half, dark horny brown on terminal half.

Distribution : India : Meghalaya (South Garo hills district) : Throughout the Indian union. Elsewhere : Bangladesh, China, Egypt, East Africa south to Kenya, Indochinese countries, Japan, Maldive Islands, Mediterranean region, Nepal, Pakistan, Persia, Sri Lanka and Sunda Islands.

Remarks : Seen it on the bank of the river Phuleswar at Baghmara, the South Garo Hills.

92. ***Gallinago minima*** (Brunnich)

1764. *Scolpax Minima* Brunnich, *Orn. Boreal.* : 49 (E. Christianso, Denmark).

1969. *Gallinago minima,* Ali and Ripley, vol. 2 : 290.

Common name : Jack Snipe (English) and Chota chaha (Hindi).

Material examined : Nil.

Diagnostic characters : Back metallic green and purple sheen in the streaked dark brown. Crown without the central stripe of other snipes. Tail wedge-shaped, uniformly dark and pointed. Bill shorter and stouter.

Distribution : India : Meghalaya (East Garo Hills district) : Throughout the Indian Union. Elsewhere : Bangladesh, Burma , Egypt, Iran, Iraq, Nepal, Mediterranean region, Pakistan, Sri Lanka, and West Europe.

Breeds in E. Europe and Asia from N. Norway east to the Kolyma delta, South to Denmark, E. Prussia, Baltic States, Central Russia, and the forest steppe of Minussinsk; Soutward limit in W. and E. Siberia not known.

Remarks : Seen it on the bank of the river Simsang at Rongrenggiri, the East Goro hills.

Genus ***Scolopax*** Linnaeus, 1758

93. ***Scolopax rusticola rusticola*** Linnaeus

1758. *Scolopax Rusticola* Linnaeus, *Syst. Nat.*, ed. 10, 1: 146 (Europe, restricted type locality, Sweden).

1966. *Scolopax rusticola rusticola,* Ali and Ripley, vol. 2: 292.

Common name : Woodcock (English) and Tuteetor (Hindi).

Material examined : Nil.

Diagnostic characters : Back brownish grey blotched and barred with black, rufous and buff. Hind crownneck and rump cross-barred with black and rufous. Chin white; throat, breast and belly brownish white cross-barred with dark brown. Bill long and slender. Nape with alternate pale bars. Large eyes are situated abnormally high up and far back in the head.

Distribution : India : Meghalaya : (Garo Hills and Khasi Hills district) : Throughout the Indian Union. Elsewhere : The Azores, Bangladesh, Bhutan, China, Canary Island, Egypt, Japan, Maderia, Mediterranean region, Nepal, Pakistan and Sri Lanka.

Remarks : Hume (1888, p. 318) reported "It occurs in many parts of the Khasi and Garo Hills, regularly if not abundantly"

Genus ***Calidris*** Merrem, 1804

94. ***Calidris minuta*** (Leisler)

1812. *Tringa minuta* Leisler, *Nachtrage zu Bechstein's Naturg. Deutschl.* : 74 (Hanau am Main, Germany).

1969. *Calidris minuta,* Ali and Ripley, vol. 2 : 301.

Common name : Little Stint (English) and Chhota panlowwa (Hindi).

Material examined : Nil.

Diagnostic characters : Back mottled greyish brown. Underparts white, outer tail-feathers smoky brown. Bill and legs black. Wings with narrow wing bar.

Distribution : India : Meghalaya (East Garo Hills district) : Throughout the Indian Union except Nicobar Island. Elsewhere : Africa, Burma (Myanmar), Nepal, Pakistan, Sri Lanka and the southern shores of Caspian Ocean.

Breeds in U.S.S.R.

Remarks : Observed it on the bank of the river Simsang, at Rongrenggiri, the East Garo Hills.

95. ***Calidris temminckii*** (Leisler)

1812. *Tringa Temminckii* Leisler, *Nachtrage zu Bechstein's Naturg. Deutschl.* : 64 (Hanau am Main, Germany).

1969. *Calidris temminckii*, Ali and Ripley, vol. 2 : 303.

Common name : Temminck's Stint (English) and Chhota panlowwa (Hindi).

Material examined : Nil.

Diagnostic characters : Back greyish brown and less mottle. Underparts pearly white. Breast light brownish grey; outer tail-feathers pure white. Legs olive-brown.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Throughout the Indian Union. Elsewhere : Bangladesh, Burma (Myanmar), China, Iran, Iraq, Japan, Malay Peninsula, Maldive, NE. Africa, Pakistan, Sri Lanka and Europe in the Mediterranean region.

'Breeds from N. Norway east to the Chukchi Peninsula but not north of lat. 72° at the mouth of Yenisey, nor north of 76° on Taimyr Peninsula; Kolguev and Vaigach is.; exact southern limits not determined, but extends into the "Alpine zone" of N. Europe and Asia. Migrates through Europe and Asia and winters in the Mediterranean region, NE. Africa, Iraq, Persia, India, Sri Lanka, Burma (Myanmar), Malay Peninsula, China and Japan' (Peters).

Remarks : Seen it near Barapani, the Ri-Bhoi Hills.

Genus ***Philomachus*** Merrem, 1804

96. ***Philomachus pugnax*** (Linnaeus)

1758. *Tringa Pugnax* Linnaeus, *syst. Nat.*, ed. 10, 1 : 148 (in Europa minus boreali = Southern Sweden).

1969. *Philomachus pugnax*,, Ali and Ripley, vol. 2 : 318.

Common name : Ruff (English). and Bagbad (Hindi).

Material examined : Nil.

Diagnostic characters : In non-breeding (Winter) : Back dumpy greyish brown with bold blackish scaly-patterned. Wings with white wings-bar. Rump dark. Tail with a white patch on either side at its base.

Distribution : India : Meghalaya : (East Garo Hills district) : Throughout the Indian Union. Elsewhere : Africa, America (North), Atlantic Islands (eastern), Antilles (Lesser), Bangladesh, Burma (Myanmar), China, Maldive Islands, Nepal, Pakistan and Sri Lanka.

Remarks : Observed it on the bank of the river Simsang, at Rongrenggiri, the East Garo Hills.

Family ROSTRATULIDAE

Genus ***Rostratula*** Vieillot, 1816

97. ***Rostratula benghalensis benghalensis*** (Linnaeus)

1758. *Rallus benghalensis* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 153 (Asia).

1969. *Rostratula benghalensis benghalensis,* Ali and Ripley, vol. 2 : 325.

Common name : Painted Snipe (English) and Rajchaha (Hindi).

Material examined : Nil.

Diagnostic characters : Back metallic olive-or bronze-green with buff and blackish streaks and markings. Chin, throat and upper breast chestnut; lower breast blackish. Belly and vent white. Whitish "Spectacles" with a white patch behind eye and white bands over shoulders to sides of breast. Bill long, slender straight and slightly down-curved at tip.

Distribution : India : Meghalaya (Khasi Hills district) : Throughout the Indian Union. Elsewhere : Arabia, Africa, Bangladesh, Burma (Myanmar), Cambodia, China, Indonesia, Iran, Japan, Madagascar, Malay Penisula, Nepal, Pakistan, Philippines and Sri Lanka.

Remarks : Baker (1907 p. 973) recorded it from the North Khasi Hills and listed it as *Rostratula capensis* Linnaeus.

Family RECURVIROSTRIDAE

Genus ***Himantopus*** Brisson, 1760

98. ***Himantopus himantopus himantopus*** (Linnaeus)

1758. *Charadrius Himantopus* Linnaeus, *Syst. Nat.*, ed. 10, 1: 151. (Southern Europe).

1969. *Himantopus himantopus himantopus,* Ali and Ripley, vol. 2: 329.

Common name : Indian Blackwinged Stilt (English) and Gazpaon (Hindi).

Material examined : Nil.

Diagnostic characters : Back glistening white; mantle and wings glossy metallic black. Underparts glistening white. Head with few black spots. Tail pale grey brown. Undersurface of wings black. Bill straight, slender and black. Legs long, thin and raddish.

Distribution : India : Meghalaya, (East Garo Hills district):Throughout the Indian Union except Andaman and Nicobar Islands: Elsewhere : Bangladesh, Bhutan, Burma(Myanmar), Nepal and Pakistan.

Breeds locally in the Mediterranean region; about the mouth on the Danube; steppes of S.Russia; S. Asia east to China and S. Aribia, the Malaya States; Egypt, Africa, South of the Sahara and Madagascar.

Remarks : Observed it on the bank of the river Simsang near Wiliamnagar, the East Garo Hills.

Family BURHINIDAE

Genus ***Burhinus*** Illiger, 1811

99. ***Burhinus oedicnemus indicus*** (Salvadori)

1865. *Oedicnemus indicus* Salvadori, *Atti. Soc. Ital. Sci. Nat., Milano,* 8 : 381 (India).

1969. *Burhinus oedicnemus indicus* Ali and Ripley, vol. 3 : 2.

Common name : Indian Stone Curlew (English) and Barsiri (Hindi).

Material examined : Nil.

Diagnostic characters : Back dark-streaked sandy brown. Head thick. Legs long bare and yellowish "thick-kneed" Eyes huge "Goggle"-like yellow. A broad buffy bar on the closed wings. Two narrow white bars and a conspicuous white patch on wings.

Distribution : India : Meghalaya (East Khasi Hills district) : Throughout the Indian mainland. Elsewhere : Bangladesh, Nepal, Pakistan, Sri Lanka, Burma (Myanmar), Thailand and Cambodia.

Remarks : Observed it at Cherrapunjee, the East Khasi Hills.

Family GLAREOLIDAE

Genus ***Glareola*** Brisson, 1760

100. ***Glareola pratincola maldivarum*** J.R. Forster

1795. *Glareola (Pratincola) Maldivarum* J. R. Forster, *Faunula Indica*, ed. 2 : 11 (Open sea in the latitude of the Maldive Islands, *ex* Latham, *Gen. Syn.* 5 : 224, Vr.B)

1969. *Glareola pratincola maldivarum*, Ali and Ripley, vol. 3: 14.

Common name : Large Indian Pratincole or Swallow-Plover (English).

Material examined : Nil.

Diagnostic characters : Size equal to Myna. Crown and back olive-brown. Uppertail-coverts white. Tail black with white base, deeply forked. Chin and throat pale rufous-buff. Legs and feet dusky black. Calls Kirri-Kirri.

Distribution : India : Meghalaya (South Garo Hills district): Throughout the Indian Union except Lakshadweep. Elsewhere : Australia, Bangladesh, Burma (Myanmar), Indochina, Nepal, Pakistan, Sri Lanka and Thailand.

Remarks : Seen it on the bank of the river Phuleswar at Baghmara, the South Garo Hills.

Family LARIDAE

Key to the genera of the family Laridae

Bill stout, compressed, upper mandible longer than the lower, the tip of upper mandible curved. .....***Larus***

Bill slender, straight with pointed tip, culmen straight .....***Sterna***

Genus ***Larus*** Linnaeus, 1758

101. ***Larus brunnicephalus*** Jerdon

1840. *Larus brunnicephalus* Jerdon, *Madras, J. Lit. & Sci.*, 12: 225 (West Coast of Indian Peninsula).

1969. *Larus brunnicephalujs*, ali and Ripley, vol. 3 : 31.

Common name : Brownheaded Gull (English) and Dhomra (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to Jungle Crow. Head and Chin dark coffee-brown (in summer); greyish white (in winter). A vertical black crescent mark behind the ear. Back grey; under-parts white. Wings with blackish tip. Bill, legs and feet deep blood red.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Throughout the Indian mainland. Elsewhere : Bangladesh, Pakistan, Sri Lanka and Southern Asia.

Breeds in Ladakh between c 3000 and 4500m. and in Central Asia from Chinese Turkestan to S. Mongolia.

Remarks : Observed it near Burnihat, Ri-Bhoi Hills.

Genus ***Sterna*** Linnaeus, 1758

102. ***Sterna aurantia*** J.E. Gray

1831. *Sterna aurantia* J.E. Gray, in Hardwicke's *Ill Ind. Zool.*, 1(5) : pl. 69, f. 2 (India).

1969. *Sterna aurantia,* Ali and Ripley, vol. 3 : 48

Common name : Indian River Tern (English) and Ganga Cheel (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to House Crow. Back pale grey; underparts white. Wings narrow, pointed. Forehead and nape glossy jet-black (in summer); flecked and streaked with black (in winter). Tail deeply forked. Crown yellow.

Distribution : India : Meghalaya (East Garo Hills district) : Throughout the Indian mainland. Elsewhere : Bangladesh, Burma (Myanmar), Malay peninsula east to the Mekong river, Nepal and Pakistan.

Remarks : Seen on the bank of the river Simsong at Rongrenggiri, the East Garo Hills.

103. ***Sterna hirundo tibetana*** Saunders

1876. *Sterna tibetana* Saunders, *Proc.Zool. Soc. Lond.* : 649 (Tibet).

1969. *Sterna hirundo tibetana*, Ali and Ripley, vol. 3 : 51.

Common name : Tibetan Common Tern (English) and Ganga Cheel (Hindi).

Material examined : Nil.

Diagnostic characters : Back dark ashy-grey and browner. Chin, throat and undertail-coverts dark grey.

Distribution : India : Meghalaya(South Garo Hills district) :Throughout the Indian mainland. Elsewhere : Bangladesh, Malay Archipelago and Sri Lanka.

Remarks : Observed it near Baghmara, South Garo Hills.

104. ***Sterna acuticauda*** J.E. Gray

1831. *Sterna acuticauda* J.E. Gray, *in* Hardwicke's *Ill., Ind., zool.*, 1(6) : pl. 70, f. 3 (Cawnpore = Kanpur, India).

1969. *Sterna acuticauda*, Ali and Ripley, vol. 3 : 139.

Common name : Blackbellied Tern (English) and Ganga cheel (Hindi).

Material examined : Nil.

Diagnostic characters : Back ashy-grey. Forehead, crown, nape and crest glossy black. Lores and cheeks pure white. Chin and throat white. Breast, belly and vent black. Tail deeply forked.

Distribution : India : Meghalaya (East Garo Hills district) :Throughout the Indian Union. Elsewhere : Bangladesh, Burma(Myanmar), Indochinese countries, Pakistan, S ri Lanka and Thailand.

Remarks : Seen it at Saringma, the East Garo Hills.

Order COLUMBIFORMES

Family COLUMBIDAE

Key to the genera of the family columbidae

1. Plumage greenish 2

   Plumage not greenish 3

2. Plumage with much yellow green above and below ..... ***Treron***

   Plumage valnaceous with metallic green in upper parts ..... ***Chalcophaps***

3. Tail with 14 feathers, head entirely whitish ..... ***Ducula***

   Tail with 12 feathers, head not white 4

4. Plumage distinctly barred with black ..... ***Macropygia***

   Plumage not barred with black 5

5. Wing above 200 mm., outer tail-feathers blackish at tips ..... ***columba***

   Wing below 180 mm., outer tail-feathers white or grey at tips ..... ***Streptopelia***

Genus ***Treron*** Vieillot, 1816

105. ***Treron sphenura sphenura*** (Vigors)

1832. (1831).*Vinago sphenura* Vigors, *Proc. Zool. Soc. Lond.* 173 (Himalayas =Simla-Almora dist., India).

1969. *Treron sphenura sphenura*, Ali and Ripley, vol. 3 : 96.

Common name : Wedgetailed Green Pigeon (English) and Kokila (Hindi).

Material examined : Nil.

Diagnostic characters : In male, back and scapulars with variable amount of maroon Crown tinged with orange-rufous. Chin and throat yellow. Breast pale orange-pink. In female, crown lacks rufous and maroon in upper parts.

Distribution : India : Meghalaya (Khasi Hills district): Northern India from Jammu & Kashmir to

Arunachal Pradesh, Assam, Manipur, Madhya Pradesh and Nagaland. Elsewhere : Bangladesh and Burma(Myanmar).

Remarks : Hume (1888, p. 292) recorded this bird from Shillong and other places in the Khasi Hills and mentioned it as *Sphenocercus sphenurus* Vig.

106. ***Treron curvirostra nipalensis*** (Hodgson)

1836. *Toria Nipalensis* Hodgson, *Asiat. Res.*, 19(1) : 164 (Nepal).

1969. *Treron curvirostra nipalensis,* Ali and Ripley, vol. 3 : 97.

Common name : Thickbilled Green Pigeon (English).

Diagnostic characters : In male, back, scapulars and lesser Wing-coverts chestnut-maroon. Forehead ashy-grey while forecrown darker grey. Central tail-feathers olive-green; outer tail-feathers grey above with black cross-bar. Underparts yellowish green with pale cinnamon tail-coverts. In female, back dark green, under tail coverts whitish with dark green broken bars.

Distribution : India : Meghalaya : (Ri-Bhoi Hills dilstrict) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma(Myanmar), Indochinese countries, Nepal and Thailand.

Remarks : Observed it at Nongpoh, Ri-Bhoi Hills.

107. ***Treron pompadora phayrei*** (Blyth)

1862. *Osmotreron Phayrei* Blyth, *J.Asiat. Soc. Beng.*, 31 : 344(Tounghoo, Burma (Myanmar).

1969. *Treron pompadora phayrei,* Ali and Ripley, vol. 3 : 102.

Common name : Ashyheaded Green Pigeon (English) and Harial (Hindi).

Material examined : Nil.

Diagnostic characters : In male, back and scapulars chestnut maroon; crown and nape dark ashy-grey. Sides of head greenish yellow. Hindneck green. Underparts greenish yellow; upper breast orange; lower breast and abdomen olive-green; under tail-coverts cinnamon. In female, similar to male, but lacks chestnut mantle and orange breast.

Distribution : India : Maghalaya (Khasi Hills district). Arunchal Pradesh, Assam, Manipur, Tripura and West Bengal. Elsewhere : Bangladesh, Burma(Myanmar), Indochinese countries and Thailand.

Remarks : Godwin-Austen (1870 p.111) recorded it from the Khasi Hills.

108. ***Treron bicincta bicincta*** (Jerdon)

1840. *Vinago bicincta* Jerdon, *Madras J. Lit. Sci.*, 12:13 (Sea coast south of Tellicherry).

1978. *Treron bicincta bicincta*, Ali and Ripley, vol. 3 : 104.

Common name : Indian Orangebreasted Green Pigeon (English), Harial (Hindi) and dokru-a-sim (Garo).

Material examined : West Garo Hills district : 1 ♂ Kherapara, coll. R.K. Ghose, 22,vii. 1988.

Diagnostic characters : Size equal to Pigeon. In male, back deep green, head light yellow. Breast with a band lilac-across followed by orange. Undertail-coverts cinnamon edged with pale yellow. Tail slaty with a broad blackish subterminal band except central pair of tail-feathers. In female, back olive-yellow; breast lacking lilac-and-orange; underparts yellowish green.

Measurements : 1 ♂ : Wing 158, tail 96, bill 23.

Distribution : India : Maghalaya (West Garo Hills district) : Throughout the Indian mainland except Arunchal Pradesh, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Mizoram, Nagaland, Sikkim and Tripura. Elsewhere : Bangladesh, Burma(Myanmar), Malay Penninsula, Nepal. Thailand and Vietnam.

109. ***Treron phoenicoptera phoenicoptera*** (Latham)

1790. *Columba phoenicoptera* Latham, *Index Orn.*, 2 : 597 (India).

1969. *Treron phoenicoptera phoenicoptera,* Ali and Ripley, vol.3: 106.

Common name : Bengal Green Pigeon (English) and Harial (Hindi).

Meterial examined : Nil.

Diagnostic characters : Back greenish grey; red shoulder-patch, neck yellow. Lower breast grey: belly and flank grey.

Distribution : India : Meghalaya (khasi Hills district) Arunachal Pradesh, Assam, Bihar, Haryana, Manipur, Mizoram, Orissa, Punjab, Rajasthan, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh and Nepal.

Remarks : Hume (1888, p.290) received a bird from Godwin-Austen who collected it from the Khasi Hills. He listed it as *Crocopus viridifrons* Blyth.

Genus ***Ducula*** Hodgson, 1836

110. ***Ducula aenea sylvatica*** (Tickell)

1833. *Columba sylvatica* Tickell, *J.Asiat. Soc. Beng.*, 2: 581 (Borabhum=Barahabhum, Purulia dist. West Bengal, India. Singbhum=Singhbhum dist., Bihar, India).

1969. *Ducula aenea sylvatica,* Ali and Ripley, vol. 3 : 111.

Common name : Northern Green Imperial Pigeon (English) and Dopilgim (Garo).

Material examined : Nil.

Diagnostic characters : Size equal to crow. Head, breast and belly pinkish grey; back, wing and tail bright metallic bronzy green. Undertail-coverts deep dull maroon.

Distribution : India : Meghalaya (Garo Hills district): Andhra Pradesh, Assam, Bihar, Madhya Pradesh, Orissa, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma(Myanmar), Indochinese countries and Thailand.

Remarks : Hume (1888, p.294) remarked "Godwin-Austen gives it from the Garo Hills and says it was in enormous numbers at the hot saline springs of Namba on the Dunsiri river" and listed it as *Carpophaga aenea* Linnaeus.

111. ***Ducula badia insignis*** Hodgson

1836. *Ducula Insignis* Hodgson, *Asiat.Res.*, 19(1) : 162, pl. 9 (Nepal).

1969. *Ducula badia insignis*, Ali and Repley, vol. 3 : 116.

Common name : Nepal Maroonbacked Imperial Pigeon (English).

Material examined : Nil.

Diagnostic characters : Back and scapulars maroon tinged copper-brown, Crown and hindneck lilac. Throat white. Breast and underparts vinous-grey. Undertail-coverts buff. Rump and upper tail-coverts ashy-grey. Tail black and brownish-grey.

Distribution : India : Meghalaya (East Khasi Hills district); Arunchal Pradesh, Assam and Sikkim. Elsewhere : Bhutan and Nepal.

Remarks : Hume (1888, p.295) reported this bird from Shillong, the East Khasi Hills and listed it as *Carpophaga insignis* Hodgson.

Genus ***Columba*** Linnaeus, 1758

112. ***Columba livia intermedia*** Strickland

1844. *Columba intermedia* Strickland, *Ann. and Mag. nat. Hist.*, 13 : 39 (India = Calcutta, Calcutta dist., West Bengal).

1969. *Columba livia intermedia*, Ali and Ripley, vol. 3 : 125.

Common name : Indian Blue Rock Pigion (English), and Kabutar (Hindi).

Material examined : Nil.

Diagnostic characters : Entire plumage bluish grey; nape and upper breast with glistening metallic green, purple and magenta sheen. Wing with two dark bands. Tail with terminal black bands.

Distribution : India : Meghalaya : Throughout the Indian Union. Elsewhere : Bangladesh, Bhutan, Burma, Nepal, Sri Lanka and Thailand.

Remarks : Sighted this bird during field survey in all the districts of Meghalaya.

Genus ***Macropygia*** Swainson, 1837

113. ***Macropygia unchall tusila*** (Blyth)

1843. *Columba tusila* 'Hodgson' = Blyth, *J. Asiat. Soc. Beng.*, 12(2): 936 (Darjeeling = Darjiling, Darjiling district. West Bengal, India).

1969. *Columba tusalia*, Ali and Ripley, vol. 3 p. 138.

Common name : Bartailed Cuckoo-Dove (English).

Material examined : Nil.

Diagnostic characters : Size equal to pigeon. In male, back, wings and tail brownish-rufous, barred with black. Tail long, broad and graduated. Forehead buff, crown lilac-purple, hindneck metallic green, chin and throat lilac-buff, breast and abdomen dark lilac. In female, the upperparts duller, head and breast barred with dark brown.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Manipur, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), Nepal, Thailand and W. Szechuan.

Ramarks : Hume (1888, p. 297) collected it from the Khasi Hills.

Genus ***Streptopelia*** Bonaparte, 1855

114. ***Streptopelia orientalis agricola*** (Tickell)

1833. *Columba agricola* Tickell, *J. Asiat. Soc. Beng.*, 2 : 581. (Jungles of Borabhum = Barahabhum, Purulia dist., West Bengal and Dholbhum = Dhalbhum, Singhbhum, dist., Bihar, India).

1969. *Streptopelia orientalis agricola,* Ali and Ripley, vol. 3: 145.

Common name : Eastern Turtle-Dove (English) and Dokru (Garo).

Material examined : East Garo Hills district : 1 ♂ Rongrenggiri, coll. N. Majumdar, 30.xi. 1988. West Garo Hill district : 1 ♀, Kherapara, coll. R. K. Ghose, 21.vii. 1988.

Diagnostic characters : Back rufous-brown. Head vinous-brown. Neck grey, spotted with black and whitish chessboard on either side of chin and centre of throat whitish. Breast vinous-rufous. Rump slaty grey.

Measurements :	Wing	Tail	Bill
1 ♂	181	126	26
1 ♀	178	125	22

Distribution : India : Meghalaya (East and West Garo Hills districts and Khasi Hills district): Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Hume (1888, p. 298) reported it from the Khasi Hills and listed it as *Turtur meena* Sykes. Koelz (1954) described this bird from Mawryngkneng, in Khasi Hills as *Streptopelia orientalis khasiana.*

115. ***Streptopelia decaocto decaocto*** (Frivaldszky)

1758. *Columba risoria* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 65 (India) (Based on a pale domesticated bird)

1969. *Streptopelia decaocto decaocto*, Ali and Ripley, vol. 3 : 147.

Common name :. Indian Ring Dove (English) and Gugi (Hindi).

Material examined : Nil.

Diagnostic characters : Size smaller than the Pigeon. Entire plumage pale greyish-brown. Hindneck with a narrow black half-collar. Outer rectrices with white edges, central pair blackish.

Distribution : India : Meghalaya : (Garo Hills district): Throughout the Indian Union except the Andaman and Nicobar Islands. Elsewhere : From Hungary over SE. Europe, Asia Minor and Sri Lanka.

Remarks : Godwin-Austen (1872, p.272) recorded it from the Garo Hills and listed it as *Turtur risorius* Linnaeus.

116. ***Streptopelia tranquebarica humilis*** (Temminck)

1824. *Columba humilis* Temminck, *Pl. Col., livr.* 44 : 259 (but not pl. 258) (Bengal and Luzon).

1969. *Streptopelia tranquebarica humilis,* Ali and Ripley, vol. 3: 151

Common name : Burmese Red Turtle-Dove (English).

Material examined : West Garo Hills district : 1 ♂ Tura, coll. Z.S.I. Party, 24.vi. 1949; Ri-Bhoi Hills district : 1 ♂ Nongpoh, coll. Z.S.I Party, 12.v. 1949; 1 ♂ Lalcharai, G.S. Road, coll. E.D. Albinus, 21.v. 1980.

Diagnostic characters : Size equal to Myna. Head grey, back brick-red and underparts pinkish. Hindneck with a narrow black half-collar.

Measurements : 2 ♂: Wing 136, 140; tail 85, 89; Bill (from the skull) 19,20.

Distribution : India : Meghalaya (Garo Hills district): Andaman Islands, Arunachal Pradesh, Assam, Manipur, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), China (northern part), Indochinese countries, Philippines, Thailand and Tibet.

Remarks : Hume (1888, p. 299) remarked "It is probably this species (though it may have been *tranquebaricus*) that Godwin-Austen records it from the Garo Hills"

117. ***Streptopelia chinensis suratensis*** (Gmelin)

1789. *Columba suratensis* Gmelin, *Syst. Nat.*, 1(2): 778 (Surat, Gulf of Cambay, India).

1969. *Streptopelia chinensis suratensis,* Ali and Ripley, vol. 3 : 152.

Common name : Indian Spotted Dove (English) and Panduk (Hindi)

Material examined : Nil.

Diagnostic characters : Size smaller than the Pigeon. Back pinkish brown, head grey; hindneck and upper back with a conspicuous black-and-white "Chessboard" Chin vinous-grey, paller on throat; belly vent and undertail-coverts white.

Distribution : India : Meghalaya (Khasi Hills district) : Throughout the Indian Union except the Andaman and Nicobar Islands, Arunachal Pradesh, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh and Pakistan.

Remarks : Godwin-Austen (1870, P. 112) collected it from the Khasi Hills and listed it as *Turtur suratensis* Gmelin.

118. ***Streptopelia chinensis tigrina*** (Temminck)

1810. *Columba Tigrina* Temminck, in *Krip, Les Pigeons, les Pigeons, les Colombes* : 94, pl. 43 (Tinor and Batavia; type from Java).

1969. *Streptopelia chinensis tigrina,* Ali and Ripley, vol. 3 : 154.

Common name : Burmese Spotted Dove (English) and Panduk (Hindi).

Material examined : East Garo Hills district : 1 unsexed, Daglapara, coll. R.V. Sherard, 19.vi. 1949; West Garo Hills district : 1 ♂ and 1 ♀, Rongrenggiri, coll. Dr. N. Majumdar, 28 and 30.xi.

1988; 1 ♂ Kherapara, coll. Dr. N. Majumdar, 17.xi. 1988. Ri-Bhoi Hills district; 1 ♂ Byrnihat, coll. R.V. Sherard, 24.v. 1949; 3 ♂, Nongpoh, coll. R.V Sherard 10.12 and 14.v. 1949; 1 ♂ and 1 ♀, Umran, coll. E.D. Albinus, 7.i. 1970 and 19.ii. 1970; 1 ♂, Umsa, Nongkhari near Nonghpoh, coll. H. Khajuria, 9.xii. 1956.

Diagnostic characters : Size smaller than the Pigeon. Back pinkish-brown, head grey; hindneck and upper back with a conspicuous black-and-white "chessboard" Chin vinous-grey, paler on throat. Belly, vent and undertail-coverts white.

Measurements :	Wing	Tail	Bill
2 ♂	140,144	135,140	19,20
2 ♀	136(2)	125,127	20,21

Distribution : India : Meghalaya (East and West Garo Hills and Ri-Bhoi Hills districts) : Arunanchal Pradesh, Assam, Manipur, Mizoram, Elsewhere: Bangladesh, Burma (Myanmar), Malaya Peninsula, Indochinese countries and Indonesia.

Remarks : Observed in all the districts of Meghalaya.

Genus ***Chalcophaps*** Gould, 1843

119. ***Chalcophaps indica indica*** (Linnaeus)

1758. *Columba indica* Linnaeus *Syst. Nat.*, ed. 10, 1 : 164 (Orientali = Amboina *vide* Stresemann, 1952, *Ibis*, 94 : 511).

1969. *Chalcophaps indica indica*, Ali and Ripley, vol. 3 : 157.

Common name : Indian Emerald Dove (English).

Material examined : East Garo Hills district : 1 ♂ Rangrenggiri, coll. N. Majumdar, 1.xii. 1988. West Garo Hills district : 1 ♂ Sibbari, coll. R.K. Ghosh, 18.vii. 1988.

Diagnostic characters : Size slightly larger than the Myna. Upper back and wings with brilliant bronzed emerald-green. Forehead and eyebrows white; crown grey. A band of white fringed feathers across lower back. Wings with whitish-grey patch. Underparts chestnut.

Measurements : 2 ♂ : Wing 148,149; tail 97,98; bill 24(2).

Distribution : India : Meghalaya : (East and West Garo Hills district) : Throughout the Indian Union except Manipur, Mizoram Nagaland and Tripura. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Indochinese countries. Indonesia, Malay Peninsula, Nepal and Philippines.

Order PSITTACIFORMES

Family PSITTACIDAE

Key to the genera of the family Psittacidae

Tail long graduated, wing larger than tail ..... ***Psittacula***

Tail short, rounded, wing smaller than tail ..... ***Loriculus***

Genus ***Psittacula*** Cuvier, 1800

120. ***Psittacula eupatria avensis*** (Kloss)

1917. *Palaeornis eupatria avensis* Kloss, *J. Nat. Hist. Siam*, 2 : 219 (Bhamo, Upper Burma = Myanmar)

1969. *Psittacula eupatria avensis*, Ali and Ripley, vol. 3 : 167.

Common name : Large Burmese Parakeet (English).

Material examined : Nil.

Diagnostic characters : Grass-green plumage; long pointed tail. A bright red shoulder-patch on wing base. Bill red, deeply hooked. In male, a prominent rose-pink collar round the back and sides of neck. In female, the rose-pink collar absent.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Manipur and Nagaland. Elsewhere: Burma (Myanmar)

Remarks : Hume (1888, p. 54) reported it from the South Khasi Hills near Cherrapunjee.

121. ***Psittacula krameri borealis*** (Neumann)

1915. *Palaeornis krameri borealis* Neumann, *Orn. Monatsb.*,23 : 178 (Assam).

1969. *Psittacula krameri borealis*, Ali and Ripley, vol. 3 : 169.

Common name : Northern Roseringed Parakeet (English), Lybar Tota (Hindi) and Tia, Dosik, Bato (Garo).

Material examined : West Garo Hills district : 1 ♂ Kherapara, coll. N. Majumdar, 16.xi. 1988.

Diagnostic characters : Size slightly bigger than the Myna. In male, the entire plumage grass-green. Neck with rose-pink and black collar. Wings without red shoulder patch. In female, the neck collar is replaced by an indistinct emerald-green ring.

Measurements : 1 ♂ : Wing 179, tail 248, bill (from the feathers) 26.

Distribution : India : Meghalaya (West Garo Hills district): Andhra Pradesh, Assam, Bihar, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Orissa, Punjab, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Pakistan, Burma (Myanmar), China and Vietnam.

122. ***Psittacula alexandri fasciata*** (P.L.S. Muller)

1776. *Psittacus fasciatus* P.L.S. Muller, *Natursyst.*, Suppl. : 74 (Pondicherry, errore, restricted to Arakan by Ticehurst, 1933, *J. Bombay, nat. Hist. Soc.*, 36 : 934).

1969. *Psittacula alexandri fasciata*, Ali and Ripley, vol. 3: 172.

Common name : Indian Redbreasted Parakeet (English) and Madna (Hindi).

Material examined : East Garo Hills district : 1 unsexed, Rangrenggiri, coll. A.N. Fernandez, 20.i. 1957. 2 ♂ coll. N. Majumdar, 12.xii. 1988. Jayantia Hills district : 1 ♂ Garampani, coll A.N. Fernandez, 27, xi. 1956;

Diagnostic characters : Size slightly smaller than the Pigeon. In male, head purplish grey; forehead black; back brighter green. Broad black stripe extending from lower mandible to side of head. Wing with yellow shoulder-patch. Throat and breast vinacious-red. Belly bluish green; vent and undertail-coverts yellowish green. In female, head tinged bluish-green; breast reddish dark.

Measurements : 2 ♂ : Wing 173, 177; tail 200,204; bill 27,28.

Distribution : India : Meghalaya (East Garo Hills and Jaintia Hills districts): Assam, Bihar, Manipur, Nagaland, Orissa, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Hainan Islands, Indochinese countries, Nepal and Vietnam.

123. ***Psittacula cyanocephala bengalensis*** (Forster)

1781. *Psittacus bengalensis* Forster, in Pennant's *Indian Zool.* 40 (Bengal, restricted to Calcutta, Calcutta district, West Bengal, India by Whistler and Kinnear).

1969. *Psittacula cyanocephla bengalensis,* Ali and Ripley, vol. 3, p. 178.

Common name : Northern Blossomheaded Parakeet (English) Tuiyatota (Hindi) and Gagra (Garo).

Material examined : Ri-Bhoi Hills district : 1 ♀, Barapani, c. 14 km N. of shillong, coll. H.L. Hiteshi, 23.v. 1949.

Diagnostic characters : In male, back and underparts grass green. Head bright bluish red, collar black-and-verdigris. Wings with maroon-red wings patch. In female, characters similar to male except head duller and greyer, collar bright yellow. Shoulder-patch absent.

Measurements : 1 ♀ : Wing 140, tail 194, bill 18 (from the cere):

Distribution : India : Meghalaya (Ri-Bhoi Hills district): Andhra Pradesh, Bihar, Gujarat, Himachal pradesh, Jammu & Kashmir, Madhya Pradesh, Orissa, Punjab, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Pakistan and Nepal.

124. ***Psittacula himalayana*** (Lesson)

1832. *Psittacus (Conurus) Himalayanus* Lesson, in Belanger's *Voy. Ind. Orient, Zool.* : 239 (Valleys of the Himalayas).

1969. *Psittacula himalayana,* Ali and Ripley, vol. 3 : 183.

Common name : Himalayan Slatyheaded Parakeet (English).

Material examined : Nil.

Diagnostic characters : Grass-green parakeet with the entire head dark bluish slaty. A prominent dark red patch on wing-shoulder in male but absent in female. Tail graduated. The tail-feathers broadly tipped with bright pale yellow.

Distribution ; India : Meghalaya (Khasi Hills district) : Assam, Himachal Pradesh, Jammu Kashmir, Sikkim and Uttar Pradesh. Elsewhere : Bhutan, Nepal and Pakistan.

Remarks : Hume (1888, p.56) reported that Godwin-Austen obtained this bird from the Khasi Hills.

125. ***Psittacula finschii*** (Hume)

1874. *Palaeornis Finschii* Hume, *Str. Feath.,* 2 : 509 (Kollidoo, 3500-5000 ft., upper Salween River, Burma = Myanmar).

1969. *Psittacula finschii,* Ali and Ripley, vol. 3 : 184.

Common name : Eastern Slatyheaded Parakeet (English).

Material examined : Nil.

Diagnostic sharacters : Entire head slate colour. Back and wings greenish-yellow. Central tail-feathers longer and narrower, lilac-blue, in the middle and duller lilac-yellow on the terminal halves. Wing with a prominent dark red spot on wing-shoulder. In female, the red shoulder-patch absent.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh, Burma (Myanmar), Laos, Thailand and Vietnam.

Remarks : Ripley (1982, p. 162) reported it from Meghalaya.

Genus ***Loriculus*** Blyth, 1850

126. ***Loriculus vernalis*** (Sparrman)

1787. *Psittacus vernalis* Sparrman, *Mus. Carls, Fasc.* 2, no. xxix and Pl. (No locality = Cachar, Assam).

1969. *Loriculus vernalis,* Ali and Ripley, vol. 3 : 188.

Common name : Indian Lorikeet (English).

Material examined : Nil.

Diagnostic characters : Size equal to Sparrow. Back, wings and tail bright grass-green. Rump with rich crimson. In male, throat with blue patch while absent in female.

Distribution : India : Meghalaya (Khasi Hills district): Andaman & Nicobar Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Karnataka. Kerala, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Sikkim and Tripura. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Indochinese Countries, Nepal and Thailand.

Remarks : Godwin-Austen (1870, p.97) recorded it from the Khasi Hills.

Order CUCULIFORMES

Family CUCULIDAE

Key to the genera of the family Cuculidae

1. Tarsus naked, without feathered 2
   Tarsus more or less feathered anteriorly 4
2. Plumage of head and shoulders not spiney ..... ***Eudynamys***
   Plumage of head and shoulders spiny 3
3. Claw of hindtoe much lengthen and nearly straight ..... ***Centropus***
   Claw of hindtoe not as above ..... ***Rhopodytes***
4. Head creasted, tarsus feathered top only ..... ***Clamator***
   Head not crested, tarsus feathered throughout infront 5
5. Tail square or forks ..... ***Surniculus***
   Tail rounded or graduated 6
6. Plumage of upper parts metallic ..... ***Caleits***

Plumage of unperparts no metallic.. .....***Cuculus***

Genus ***Clamator*** Kaup, 1829

127. ***Clamator coromandus*** Linnaeus,

1766. *Cuculus coromandus* Linnaeus, *syst. Nat.*, ed. 12, I : 171 Coromandel = Pondicherry, India).

1969. *Clamator coromandus,* Ali and Ripley, vol. : 192.

Common name : Redwinged crested cuckoo (English).

Material examined : Khasi Hills district : 1 ♂ Manihar Basti, *c.* 8 km. N. of Nongpoh, coll. H.L. Hiteshi, 2.vi. 1949.

Diagnostic characters : Back and head with crest glossy black; a white half-collar on hindneck, wings chestnut. Chin, throat and breast rust colour; belly and vent whitish.

Measurements : 1 ♂ : Wing 163, tail 228, bill 32.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Arunachal Pradesh, Assam, Bihar, Karnataka, Kerala, Maharashtra, Manipur, Mizoram, Nagaland, Sikkim, Tamil Nadu, Uttar Pradesh. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Celebes, China, Indochinese countries, Indonesia, Malay Peninsula, Nepal, Philippines and Thailand.

Remarks : Baker (1907, p. 968) recorded it from the Garo Hills.

128. ***Clamator jacobinus serratus*** (Sparrman)

1786. *Cuculus serratus* Sparrman, *Mus. Carls, fasc.* 1. no. 3 and pl. (Cape of Good Hope = Cape Peninsula, Cape Province, S. Africa).

1969. *Clamator jacobinus serratus,* Ali and Repley, vol. 3 : 194.

Common name : Pied Crested cuckoo (English) and Papiya (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to Myna. Black head with crest. Wings and tail black. Wings with roundish white patch. Tail graduated with tips. Inner parts white.

Distribution : India : Meghalaya (Khasi Hills district) : Andhra Pradesh, Arunachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Maharashtra, Manipur, orissa, Punjab, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Africa (South of Sahara), Bangladesh, Nepal and Paksitan.

Remarks : Hume (1888, p. 76) recorded it from Shillong, the East Khasi Hills and listed it as *Coccystes jacobinus* Bodaert.

Genus ***Cuculus*** Linnaeus, 1758

129. ***Cuculus sparverioides sparverioides*** Vigors

1832 (1831). *Cuculus sparverioides* Vigors, *Proc. Zool. Soc. Lond.,* 1 : 173 (Himalays = Simla-Almora dist., India).

1969. *Cuculus sparverioides sparverioides,* Ali and Ripley, vol. 3: 198.

Common name : Large Hawk-Cuckoo (English).

Material examined : Nil.

Diagnostic characters : Upper back ashy-brown; crown, nape and sides of neck ashy-grey. Tail brown banded with blackish and tipped with white. Throat white streaked with ashy and rufous. Breast deep rufous. Lower breast and belly rufous and across-banded with brown.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Manipur, Nagaland, Orissa, Sikkim, Tamil Nadu and Uttar Pradesh.

Remarks : Ripley (1982, p. 165) recorded it from Meghalaya.

130. ***Cuculus varius varius*** Vahl

1797. *Cuculus varius* Vahl, *Skriv. Naturhist.-Selsk. Kjobenhavn* 4(1) : 60 (Tranquebar).

1969. *Cuculus varius varius,* Ali and Ripley, vol. 3 : 200.

Common name : Commom Hawk-Cuckoo (English) and Papiya (Hindi0.

Material examined : South Garo Hills district : 1 ♀, Baghmara, coll. R.K. Ghose, 13.vii. 1988.

Diagnostic characters : Size equal to Pigeon. Crown and back ashy-grey. Tail long, tipped rufescent with 4 or 5 whitish and black bars. Chin and throat white suffused with rufous and ashy on breast. Abdomen and flanks barred with brownish.

Measurements : 1 ♀ : Wing 180, tail..... Juvenile

Distribution : India : Meghalaya : Throughout the Indian mainland. Elsewhere : Pakistan, Bangladesh, Bhutan, Nepal, and Sri Lanka.

131. ***Cuculus fugax nisicolor*** Blyth

1843. *Cuculus nisicolor* Blyth, *J. Asiat. Soc. Beng.*, 12(2): 943 (Nepal).

1969. *Cuculus fugax nisicolor,* Ali and Ripley, vol. 3 : 203.

Common name : Hodgson's Hawk-Cuckoo (English).

Material examined : Nil.

Diagnostic characters : Head, hindneck slaty grey. Wings brownish. Tail banded grey and black alternately; tipped with rufous. chin grey, throat and foreneck white streaked with grey. Vent and under tail-coverts white.

Distribution : India : Meghalaya (Khasi Hills district): Arunachal Pradesh, Assam, Manipur, Nagaland and Sikkim. Elsewhere: Bhutan, Burma (Myanmar), China, Indochinese countries, Nepal and Thailand.

Remarks : Hume (1888, p. 72) reported this from the Khasi Hills and mentioned it as *Hierococcyx nisicolor* Hodgson.

132. ***Cuculus micropterus micropterus*** Gould

1837. *Cuculus micropterus* Gould, *Proc. Zool. Soc. Lond.*, 137 (Himalayas. Simla-Almora dist., India)

1969. *Cuculus micropterus micropterus,* Ali and Ripley, vol. 3 : 204.

Common name : Indian Cuckoo (English).

Material examined : Nil.

Diagnostic characters : In male, back dark slaty grey with a brownish tinge. Tail long with a broad black subterminal band. Chin and throat pale ashy. Breast and belly white, cross barred with widely spaced broad black bands. In female, chin and throat pale grey. Breast browner, with a rufous tinge.

Distribution : India : Meghalaya (East Khasi Hills district): Throughout the Indian Union. Elsewhere : Pakistan, Nepal, Bangladesh, Bhutan and Philippines.

Breeds also in Burma(Myanmar), Thailand, Malay Peninsula, S. China, Korea and U.S.S.R.

Remarks : Hume (1888, pp. 70 & 71), collected it from Shillong, East Khasi Hills and listed it as *Cuculus striatus* Drapiez and *C. micropterus* Gould.

133. ***Cuculus canorus bakeri*** Hartert

1912. *Cuculus canorus bakeri* Hartert, *Vog. pal. Fauna,* 2 : 948 (Shillong, Assam).

1969. *Cuculus canorus bakeri,* Ali and Ripley, vol. 3 : 210.

Common name ; Khasi Hills Cuckoo (English).

Material examined : Khasi Hills district : 1 ♀, Motinagar Forest, coll. T. Dorling, 20.iv. 1981.

Diagnostic characters : In male, back blackish slaty. Tail blackish brown, spotted and tipped with white. Chin and breast pale ashy. Abdomen and belly white broadly cross-barred with blackish. In female, upper breast, throat and neck rufous. chin, throat and breast barred pale chestnut and blackish.

Measurements : 1 ♀ : Wing 210, tail 168, bill 27.

Distribution : India : Meghalaya (Khasi Hills district): Arunachal Pradesh, Assam, Maharashtra, Manipur, Nagaland and Sikkim. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Godwin Austin (1870, p. 267) reported it from the Khasi Hills and listed it as *Cuculus canorus* Linnaeus.

134. ***Cuculus saturatus horsfieldi*** Moore

1857. *Cuculus horsfieldi* Moore in Horsfield & Moore, *Cat. Birds Mus.* East India Co. 2 : 703 (Java).

1982. *Cuculus saturatus horsfieldi,* Ripley : 167.

Common name ; East Himalayan Cuckoo (English).

Material examined : Nil.

Diagnostic characters : Similar to the preceding bird but with the edge of the wing-shoulder pure white, without any brown barring.

Distribution : India : Meghalaya : Bihar, Maharashtra, Rajasthan and Uttar Pradesh.

Remarks : Ripley (1982, p. 167) included it from Meghalaya.

135. ***Cuculus poliocephalus poliocephalus*** Latham

1790. *Cuculus poliocephalus* Latham. *Index Orn.*, 1 : 214 (India).

1969. *Cuculus poliocephalus poliocephalus,* Ali and Ripley, vol. 3, 213.

Common name : Small Cuckoo (English).

Material examined : Nil.

Diagnostic characters : Head, back and wings slaty grey. Throat and upper breast suffused with buff. Lower breast and belly white with black barred. Edges of wing ashy. Legs and feet wax yellow.

Distribution : India : Meghalaya (Khasi Hills district): Throughout India, except Manipur, Mizoram, Punjab and Rajasthan. Elsewhere : Bhutan, Burma (Myanmar), Nepal, Pakistan and Sri Lanka.

Remarks : Hume (1888, p. 71) reported it from Shillong, the East Khasi Hills.

Genus ***Chalcites*** Lesson, 1830

136. ***Chalcites maculatus*** (Gmelin)

1788. *Trogon maculatus* Gmelin, *Syst. Nat.*, 1(1): 404 (Ceylon = Sri Lanka).

1969. *Chalcites maculatus,* Ali and Ripley, vol. 3 : 221.

Common name : Emerald Cuckoo (English).

Material examined : Nil.

Diagnostic characters : In male, back, neck and head brilliant glossy green with golden bronze reflections. Rectrices tipped-white. A white patch at base of primaries. Chin, throat and the upper breast glossy green. Abdomen and vent white. In female, crown and nape golden rufous. Tail barred chestnut and black tipped with white.

Distribution : India : Meghalaya (Garo Hills districts): Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Manipur, Madhya Pradesh and Tamil Nadu and Uttar Pradesh. Elsewhere : Burma (Myanmar), Bhutan, China, Sri Lanka, Tibet and Vietnam.

Remarks : Gowin-Austen (1872, p. 142) recorded it from the Garo Hills and listed it as *Chrysococcyx maculatus* Gmelin.

Genus ***Surniculus*** Lesson, 1830

137. ***Surniculus lugubris dicruroides*** (Hodgson)

1839. *Pseudornis Dicruroides* Hodgson, *J. Asiat. Soc. Beng,* 8: 136 and pl. (Mountains of Nepal).

1969. *Surniculus lugubris dicruroides,* Ali and Ripley, vol. 3:224.

Common name : Indian Drongo-Cuckoo (English).

Material examined : Nil.

Diagnostic characters : Entire body glossy metallic black. Tail forked. Outermost tail-feathers near their base barred with white.

Distribution : India : Meghalaya (Khasi Hills district) : Northern India from Jammu & Kashmir to Arunachal Pradesh, Assam, Manipur and Southern India upto Kerala. Elsewhere : Bangladesh, Burma

(Myanmar), Nepal, Pakistan, China, Indochinese countries, Hainan and Thailand.

Remarks : Hume (1888, p. 74) reported that Godwin-Austen recorded this bird from the Khasi Hills and listed it as *Surniculus lugubris* Horsfield.

Genus ***Eudynamys*** Vigors & Horsfield, 1826

138. ***Eudynamys scolopacea scolopacea*** (Linnaeus)

1758. *Cuculus scolopacea* Linnaeus, *Syst. Nat.*, ed. 10, 1: 111 (Malabar, Kerala, India).

1969. *Eudynamy scolopacea scolopacea,* Ali and Ripley, vol. 3: 227.

Common name : Indian Koel (English) and Koel (Hindi).

Material examined : Nil.

Distribution : Size equal to House Crow. In male, entire plumage glistening metallic black. Bill yellowish green. Eyes crimson. Calls : Kuoo, Kuoo etc. In female, back, wings dark brown with white spotted and barred. Tail and wings barred with white, chin and throat white spotted; breast, belly and vent whitish barred with blackish.

Distribution : India : Meghalaya (Khasi Hills district): Throughout the Indian Union except eastern India beyond Assam and the Andaman & Nicobar Islands. Elsewhere : Bangladesh, Bhutan, Nepal, Pakistan and Sri Lanka.

Remarks : Godwin-Austen (1907 , p. 968) recorded it from Khasi Hills and listed it as *Eudynamis honorata.*

139. ***Eudynamys scolopacea malayana*** Cabanis & Heine

1863. *Eudynamys malayana* Cabanis & Heine, *Mus. Hein. Th.*, 4(1): 52 (Sunda Islands and Sumatra).

1969. *Eudynamys scolopacea malayana,* Ali & Ripley, vol 3: 229.

Common name ; Malay Koel (English).

Material examined : East garo Hills district: 1♂, Rongrenggiri *c.* 4 km. East of Williamnagar, coll. N. Majumdar, 30. xi. 1988

Diagnostic characters : Size equal to House Crow. In male, entire plumage glistening metallic black. Bill yellowish green. Eyes crimson. In female, back and wings dark brown with white spotted and barred. Tail and wings barred with white, chin and throat white with spotted; breast, belly and vent whitish barred with blackish.

Measurements : 1 ♂: Wing 202, tail -, bill from the skull 35.

Distribution : India : Meghalaya (East Garo Hills district): Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh, Burma (Myanmar), Indonesia, Malaysia and Thailand.

Genus ***Rhopodytes*** Cabanis & Heine, 1863

140. ***Rhopodytes tristis tristis*** (Lesson)

1830. *Melias tristis* Lesson, *Traited Orn., livr.* 2 : 132 (Sumatra, *errore* = Bengal).

1969. *Rhopodytes tristis tristis,* Ali and Repley, vol. 3 : 231.

Common name : Large Greenbilled Malkoha (English).

Material examined : Ri-bhoi Hills district : 1 ♂ and 1 ♀, Nongpoh, coll. H.L. Hiteshi, 13.v. 1949; 1 ♂, Kyrelenkulai, coll. E.D. Albinus, 19.v. 1978.

Diagnostic characters : Size equal to Pigeon. Back dark ashy-grey with deep green gloss. Forehead grey with shiny bristly black shafts to the feathers. Tail green-glossed black, graduated long and broad; rectrices tipped with white. Chin, throat and sides of head yellowish ashy-grey darkening to blackish on abdomen and vent.

Measurements :	Wing	Tail	Bill
2 ♂	163,171	345,380	37,39
1 ♀	164	365	38

Distribution : India : Meghalaya (Ri-bhoi Hills district): Arunachal Pradesh, Assam, Bihar, Madhya Pradesh (eastern), Manipur, Nagaland, Orissa, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan and Nepal.

Genus ***Centropus*** Illiger, 1811

141. ***Centropus sinensis intermedius*** (Hume)

1873. *Centrococcyx intermedius* A.O.H. (=Hume), *Str. Feath.*, 1 : 454, in text (Dhoon, Dacca = Dhaka and Thayetmyo).

1969. *Centropus sinensis intermedius,* Ali and Ripley, vol. 3: 242.

Common name : East Pakistan Crow-Pheasant (English) and Dobitbit (Garo).

Material examined : Nil.

Diagnostic characters : Size smaller than the Jungle Crow. Back and tail glossy black. Wings chestnut. Tail long, broad and graduated.

Distribution : India : Meghalaya (West Garo Hills district): Assam, Manipur, Mizoram, Nagaland, Tripura and West Bengal. Elsewhere : Burma (Myanmar), China, Indochinese countries, Hainan and Thailand.

Remarks : Observed it near Kherapara, the West Garo Hills.

142. ***Centropus toulou bengalensis*** (Gmelin)

1788. *Cuculus bengalensis* Gmelin, *Syst. Nat.*, 1(1) : 412 (Bengal).

1969. *Centropus toulou bengalensis,* Ali and Ripley, vol. 3 : 246.

Common name : Lesser Coucal (English).

Material examined : Garo Hills district : 1 ♂ Sarengma, *c.* 10 km N. of Dudnai, coll. Not known, 4.vii. 1949, Ri-Bhoi district : 2 ♂ and 1 ♀, Nonpoh, coll. R.V. Shererd and H.L. Hiteshi, 11 and 14.v. 1949.

Diagnostic characters : Back and wings with glistening blue-black with chestnut. Tail-feathers slaty with white-tipped.

Measurements : 2 ♂ : Wing 140, 155; tail 174, 182; bill 26,28.

Distribution : India : Meghalaya (Garo Hills Khasi Hills and Ri-Bhoi Hills districts) : Assam,

Bihar, Karnataka, Kerala, Manipur, Mizoram, Nagaland, Sikkim, Tamil Nadu, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Indochinese countries, Hainan, Nepal and Thailand.

Remarks : Godwin-Austen reportd it from the Khasi Hills and listed it as *Centrococcyx bengaiensis* Gmelin.

Order STRIGIFORMES

Family STRIGIDAE

key to the subfamilies of the family Strigidae

Facial disc and ruff well marked, ear-orifice smaller than eye, middle claw pectinate.....***Tytoninae***

Facial disc and ruff ill marked, ear-orifice larger than eye, middle claw simple .....***Striginae***

Key to the genera of the family Strigridae

1. Middle claw pectinate..... 2

   Middle claw not pectinate 3

2. Ruff around eyes not separated..... ***Tyto***

   Ruff around eyes separated .....***Phodilus***

3. Ear-tufts present..... 4

   ear-tufts absent 6

4. Wing over 250 mm..... 5

   Wing below 250 mm..... ***Otus***

5. Wing over 350 mm.....***Bubo***

   Wing in between 280 to 330 mm.....***Asio***

6. Wing above 245 mm.....***Strix***

   Wing below 240 mm..... 7

7. Plumage uniform above .....***Ninox***

   Plumage barred or spotted above 8

8. Plumage barred above ..... ***Glaucidium***

   Plumage spotted above.....***Athene***

Genus ***Tyto*** Billberg, 1828

143. ***Tyto capensis longimembris*** (Jerdon)

1839. *Strix longimembris* Jerdon, *Madras Jour. Lit. Sci.*, 10 : 86 (Neilgherries, India).

1969. *Tyto capensis longimembris,* Ali and Ripley, vol. 2 : 252.

Common name : Grass Owl (English).

Material examined : Nil.

Diagnostic characters : Upper parts dark brown minutely spotted with white. Underparts white with scattered brown spots. Facial disc white or pinkish rusty white bordered by a dark-brown ruff. A blackish spot infront of eye.

Distribution : India : Meghalaya (Khasia Hills district) : Throughgout the Indian Union except Himachal Pradesh, Jammu & Kashmir, Gujarat, Mizoram and Naga Hills, Punjab and Rajasthan. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Vietnam.

Remarks : Godwin-Austen (1870, p. 93) obtained it near the Kopili river, the Khasi Hills. Hume (1888, p. 18) reported this bird from the Khasi Hills and listed it as *Strix candida* Tick.

Genus ***Phodilus*** G. Saint-Hilaire, 1830

144. ***Phodilus badius saturatus*** Robinson

1927. *Phodilus badius saturatus* Robinson, *Bull. Brit.Orn. Cl.*, 47: 121 (Native Sikkim).

1969. *Phodilus badius saturatus*, Ali and Ripley, vol. 3 : 253.

Common name : Sikkim Bay Owl (English).

Material examined : Nil.

Diagnostic characters : Back and wings chestnut, spotted with black and buff. Two short ear-like tufts projecting above sides of head. Outer webs of 1st two premaries barred white and black. Tail chestnut, barred with black. Facial disc vinous-pink surrounded with white ruff tipped black and chestnut. Underparts vinous-pink spotted with black and white.

Distribution : India : Meghalaya : Assam, Manipur, Nagaland and Sikkim. Elsewhere : Burma (Myanmar), Nepal, Thailand and Vietnam.

Remarks : Ripley (1982, p. 175) recorded it from Meghalaya.

Genus ***Otus*** Pennant, 1769

145. ***Otus scops sunia*** (Hodgson)

1836. *Scops sunia* Hodgson, *Asiat. Res.*, 19: 175 (Nepal).

1969. *Otus scops sunia*, Ali and Ripley, vol. 3 : 262.

Common name : North Indian Scops Owl (English) and Dopo (Garo).

Material examined : West Garo Hills district : 2 ♂ and 1 ♀, Kherapara, coll. Dr. N. Majumdar, 21 and 22.xi. 1988.

Diagnostic characters : A small, slim, 'eared' owl. Back, wing and tail delicately vermiculated greyish brown. Various phases- dark, rufous and greyish. Underparts less streaked and rather more barred.

Measurements :	Wing	Tail	Bill [from the feathers]
2 ♂	145,151,	67,70	17(2)
1 ♂	153	71	17

Distribution : India : Meghalaya (West Garo Hills and East Khasi Hills districts) : Assam,

Arunachal Pradesh, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Manipur, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Nepal and Pakistan.

Remarks : Hume (1888, p. 21) recorded it from Shillong, East Khasi Hills. He listed this bird as *Scops pennatus* Hodgson. Koelz (1954) recorded it from Mawphlang, the East Khasi Hills and described it as *Otus sunia khasiensis*.

146. ***Otus bakkamoena lettia*** (Hodgson)

1836. *Scops lettia* Hodgson, *Asiat. Res.*, 19: 176 (Nepal).

1969. *Otus bakkamoena lettia,* Ali and Ripley, vol. 3: 270.

Common name : Burmese Collared Scops Owl (English).

Material examined : Nil.

Diagnostic characters : Size slightly bigger than the preceding bird. Back rufous-brown, mottled and vermiculated with whitish. Tarsus feathered only to base of toes. Presence of a prominent pale collar at base of hindneck. Chin and throat white on buff. Upper abdomen and vent white to rich buff streaked with black and with fine wavy bars of reddish brown.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Arunachal Pradesh, Bihar, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Thailand.

Remarks : Observed it at Nongpoh, the Ri-Bhoi Hills.

Genus ***Bubo*** Dumeril, 1806

147. ***Bubo bubo bengalensis*** (Franklin)

1831. *Otus Bengalensis* Franklin, *Proc. Comm. Zool. Soc. Lond.* : 115 (The Ganges between Calcutta and Benares and in the Vindhyan Hills between the latter place and Gurra Mundela).

1969. *Bubo bubo bengalensis,* Ali and ripley, vol. 3 : 273.

Common name : Indian Great Horned Owl (English) and Ghughu (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to Pariah Kite. Back dark brown streaked and mottled with tawnybuff and black. Head with two prominent blackish horns or ear-tufts. Chin whitish, throat light rufous with dark spots; breast and belly yellowish fufous with longitudinal streaks.

Distribution : India : Meghalaya (Khasi Hills district) : Throughout the Indian mainland. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Pakistan.

Remarks : Seen it near Mawphlong, the East Khasi Hills.

148. ***Bubo coromandus coromandus*** (Latham)

1790. *Strix coromanda* Latham, *Index Orn,* 1 : 53 (Coromandel coast Tamil Nadu, India).

1969. *Bubo coromandus coromandus,* Ali and Ripley, vol. 3 : 278.

Common name : Dusky Horned Owl (English).

Material examined : Nil.

Diagnostic characters : Head, back and tail rufous-brown heavily streaked with black. Head with two "horns" Underparts whitish with fine wavy brown cross-band and bold blackish streaks. Large white patch on throat and foreneck. Eyes bright golden yellow.

Distribution : India : Meghalaya (Khasi Hills district) : Throughout the subcontinent. Elsewhere : Bangladesh Bhutan, Nepal and Pakistan.

Remarks : Hume (1888, p. 20) remarked "I never saw, though this occurs in the North Khasi Hills"

149. ***Bubo zeylonensis leschenault*** (Temminck)

1820. *Strix leschenault* Temminck *Pl. Col., livr.* 4, pl. 20 (Eastern provinces of India-Chandernagore).

1969. *Bubo zeylonensis leschenault,* Ali and Ripley, vol. 3 : 280.

Common name : Brown Fish Owl (English) and Ullu (Hindi).

Material examined : Nil.

Diagnostic characters : Back rufous-brown heavily streaked with black. Underparts whitish with fine wavy brown-cross bars and bold blackish streaks. A large white patch on throat and foreneck. Head with two long ears. Legs naked.

Distribution : India : Meghalaya (Khali Hills district) : The entire Indian Union. Elsewhere : Bangladesh, Burma (Myanmar), Indochinese countries and Indonesia.

Remarks : Hume (1888, p. 21) reported it from Shillong, the East Khasi Hills and listed it as *Ketupa ceylonensis* Gmelin.

150. ***Bubo flavipes*** (Hodgson)

1836. *Cultrunguis Flavipes* Hodgson, *J. Asiat. Soc. Beng.,* 5 : 364, pl. 26 (Nepal).

1969. *Bufo flavipes,* Ali and Ripley, vol. 3, p. 283.

Common name : Tawny Fish Owl (English).

Material examined : Nil.

Diagnostic characters : Back rich ornage-rufous with broad blackish shaft-stripes. Quills of wings and tails dark brown, with buff bars and tips. A white patch on throat. Underparts rich orange-rufous with dark brown shaft-stripes, broadest on breast.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Bihar, Himachal Pradesh, Manipur, Mizoram, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Bangladesh, Burma (Myanmar), China, Indochinese countries, Nepal and Pakistan, and Taiwan.

Remarks : Hume (1888 P. 21) obtained a specimen of this from the Khasi Hills and reported it *as Ketupa flavipes* Hodgson.

Genus ***Glaucidium*** Boie, 1826

151. ***Glaucidium brodiei brodiei*** (Burton)

(1836) 1835. *Noctua Brodiei* Burton, *Proc. Zool. Soc. Lond.* : 152 (Himalayas, restricted to Simla =Shimla, Himachal Pradesh, India by Baker, 1927 *Fauna Br. India,* 4 : 450).

1969. *Glaucidium brodiei brodiei,* Ali and Ripley, vol. 3, p. 285.

Common name : Collared Pigmy Owlet (English).

Material examined : Nil.

Diagnostic characters : Size equal to Quail. Back, wings and tail barred grey-brown. Supercilium white. A rufous half-collar on upper back. A white-patch on throat.

Distribution : India : Meghalaya (West Garo Hills district) : Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Mizoram, Nagaland, Punjab, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, China, Hainan, Malay Peninsula, Nepal, Pakistan and Vietnam.

Remarks : Koelz (1952) reported it from Tura, the West Garo Hills and described it as *Glaucidium brodiei garoense.*

152. ***Glaucidium cuculoides rufescens*** Baker

1926. *Glaucidium cuculoides rufescens* Baker, *Bull. Br. Orn. Cl.,* 47 : 59 (Noong-Zai-ban=lat, 24°48' N., long 93°12'E., Manipur, India).

1969. *Glaucidium cuculoides rufescens,* Ali and Ripley, vol. 3: 291.

Common name : Burmese Barred Owlet (English).

Material examined ; East Garo Hills district : 1 ♂ Rongreggiri, coll. R.K. Ghose, 3.vii. 1988; Tasek, Songsak Reserve Forest, coll. R.K. Ghose, 4.vii.1988; 1 ♂ and 1♀,Williamnagar, coll. N Majumdar, 28 and 30 xi, 1988; 1 ♂, Williamnagar, coll. Dr. A.K. Mandal, 2.xii. 1988; Khasi Hills district : 1 ♂, Shillong, coll. T. D. Soota, 3.ii. 1974; 1 ♂ Kyrdom Kulai forest, coll. E.D. Albinus, 8.iii. 1979. West Garo Hills district : 1 ♂ Kherapara, coll. R.k. Ghose, 22.vii. 1988.

Diagnostic characters : Size smaller than the preceding bird. Colourtion much richer rufous-brown. Breast more streaked, less bared.

Measurements :	Wing	Tail	Bill
2 ♂	140,142	83,84	20.21
1 ♀	150,156	87,92	21(2)

Distribution : India : Meghalaya (East Garo Hills, West Garo Hills districts and Khasi Hills district) : Assam, Manipur, Tripura and West Bengal. Elsewhere : Bangaladesh, Burma (Myanmar), Laos and Vietnam.

Remarks : Hume (1888, p. 23) remarked "occurs in the Garo Khasi Hills" and listed it as *Glaucidium cuculoides* Vigors.

Genus ***Ninox*** Hodgson, 1837

153. ***Ninox scutulata burmanica*** Hume

1876. *Ninox burmanica* Hume, *Stray Feathers,* 4 : 285 (Pegu and Tenasserim, Burma=Myanmar).

1969. *Ninox scutulata burmanica,* Ali and Ripley, vol. 3 : 294.

Common name : Burmese Brown Hawk-Owl (English).

Material examined : Nil.

Diagnostic characters : Back dark greyish brown. Lower plumage whitish streaked with brown. Tail barred with black and white-tipped.

Distribution : India : Maghalaya (East Khasi Hills district) : Assam, Manipur, Mizoram Nagaland and Tripura. Elsewhere : Bangladesh, Burma, China, Indochinese countries, Malay Peninsula and Thailand.

Remarks : Observed it at Mawphlang, the East Khasi Hills.

Genus ***Athene*** Boie, 1822

154. ***Athene Brama indica*** (Franklin)

1831. *Noctua indica* Franklin, *Proc. zool. Soc. Lond.*, 115 (Banks of the Ganges and in the mountain chain of upper Hindoostan, i.e. Uttar Pradesh, India).

1969. *Athene brama indica,* Ali and Ripley, vol. 3 : 299.

Common name : Northern Spotted Owlet (English).

Material examined : Nil.

Diagnostic characters : Size equal to Myna. Head, back, wings and tail greyish brown white spotted. Underparts whitish with brown barred.

Distribution : India : Meghalaya (Khasi Hills district): Arunachal Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Manipur, Orissa, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Nepal and Pakistan.

Remarks : Godwin-Austen (1870, p. 94) obtaind it from the Khasi Hills and reported it as *Athene Brama* Temminck.

Genus ***Strix*** Linnaeus, 1758

155. ***Strix leptogrammica newarensis*** (Hodgson)

1836. *Ulula newarensis* Hodgson, *Asiat. Res.*, 19 : 168 (Nepal).

1969. *Strix leptogrammica newarensis,* Ali and Ripley, vol. 3: 307.

Common name : Himalayan Brown Wood Owl (English).

Material examined : Nil.

Diagnostic characters : Head and back chocolate-brown. Scapulars, wings and upper tail-coverts barred with white. Tail brown, barred with fulvous; tip white. Chin mixed chocolate and white. Throat with a pure white-patch. Breast and abdomen pale fulvous suffused with brownish and closely barred with dark brown.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Assam, Himachal Pradesh, Jammu & Kashmir, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Burma (Myanmar), Nepal, Thailand and Pakistan.

Remarks : Hume (1888, p. 19) remarked "Received this species from near Shillong and believe that it occurs throughout the Garo, Khasi Hills" and listed it as *Syrnium newarense* Hodgson.

156. ***Strix leptogrammica indranee*** Sykes

1832. *Strix indranee* Sykes, *Proc. zool. Soc. Lond.* : 82 (The Ghauts = Lonauli, Western Ghats).

1969. *Strix leptogrammica indranee,* Ali and Ripley, vol. 3: 308.

Common name : Brown Wood Owl (English).

Material examined : Nil.

Diagnostic characters : Back chocolate-brown. Wings and upper tail-coverts barred with white. Tail brown, barred with fulvous and with white-tipped. Chin mixed white and chocolate. Throat with a white-patch. Chin mixed white and chocolate. Throat with a white-patch. Breast and belly pale fulcous, closely barred with dark-brown.

Distribution : India : Meghalaya : Andhra Pradesh, Assam, Kerala, Madhya Pradesh, Maharashtra, Manipur, Nagaland and Orissa.

Remarks : Ripley (1982, p. 187) recorded it from Meghalaya.

Genus ***Asio*** Brisson, 1760

157. ***Asio flammeus flammeus*** (Pontoppidan)

1763. *Strix Flammea* Pontoppidan, *Dansk. Atlas,* 1 : 617, pl. 25 (Sweden).

1969. *Asio flammeus flammeus,* Ali and Ripley, vol. 3: 314.

Common name : Shorteared Owl (English).

Material examined : Nil.

Diagnostic characters : Size larger than the Pigeon. Head darker greyish; facial disc white with bristly black feathers intermined, surrounded by a dark brown ruff. Two blackish brown short ear-tufts.Wings and tail barred rufous and black. Underparts pale buff longitudinally streaked with brown.

Distribution : India : Meghalaya (Ri-Bhoi Hills district): Throughout the Indian Union. Elsewhere:Africa (north), Aden, Bangladesh, Ethiopia, Maldive Islands, Mediterranean region, Nepal, Pakistan.

Remarks : Observed it near Nongpoh, Ri-Bhoi Hills.

Order CAPRIMULGIFORMES

Family CAPRIMULGIDAE

Genus ***Caprimulgus*** Linnaeus, 1758

158. ***Caprimulgus indicus hazarae*** Whistler & Kinnear

1935. *Caprimulgus indicus hazarae* Whistler & Kinnear, *J. Bombay nat. Hist. Soc.,* 38 : 37 (Abbottabad, Hazara, Himalayas).

1970. *Caprimulgus indicus hazarae,* Ali and Ripley, vol. 4 : 8.

Common name : Himalayan Jungle Nightjar (English) and Dabchiri (Hindi).

Material examined : Nil.

Diagnostic characters : Tarsus feathered; four outer pairs of tail-feathers with subterminal white spots in male, while in female white spots absent. Upper back dark with heavier markings; barring on the tail broader. Bill pinkish brown, paler at base and gape.

Distribution : India : Meghalaya (West Garo Hills district) : Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Mizoram, Nagaland, Sikkim and Uttar Pradesh. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Malaya Penninsula, Nepal and Pakistan.

Remarks : Recorded the call note at Kherapara, the West Garo Hills.

159. ***Caprimulgus indicus jotaka*** Temminck & Schlegel

1847. *Caprimulgus jotaka* Temminck & Sehlegal, *in* Siebold's *Fauna Japonica, Aves,* P. 37, pls. 12,13 (Japan).

1982. *Caprimulgus indicus Jotaka,* Ripley : 191.

Common name : Ceylon Jungle Nightjar (English).

Material examined : Nil.

Diagnostic characters : Plumage mottled, vermiculated, barred and streaked with brownish-buff, grey, rufous, black and white. Tarsus almost naked. In male, four outer pairs of tail-feathers with subterminal white spots, but absent in female.

Distribution : India : Meghalaya (Garo Hills and khasi Hills districts) : Assam and Manipur. Elsewhere : Bhutan.

Remarks : Hume (1888, p. 38) reported this bird from the Garo and Khasi Hills.

160. ***Caprimulgus macrurus albonotatus*** Tickell

1833. *Caprimulgus Albonotatus* Tickell, *J. Asiat. Soc. Beng.,* 2 : 580 (Dampara, Dholbhum, Bengal) [Now is Chaibasa dist., Bihar].

1970. *Caprimulgus macrurus albonotatus,* Ali and Ripley, vol. 4 : 16.

Common name : Indian Longtailed Nightjar (English).

Material examined : Ri-Bhoi Hills district : 1 ♀, Nongpoh, coll. H. Khajuria, 9.v.1957.

Diagnostic characters: Tail long and graduated. A white spot on 1st four primaries in male. In female, the outer tail-feathers pale yellowish buff. call-Chaunk-chaunk-chaunk.

Measurements : 1 ♀, Wing, 200, tail 70, bill 14.

Distribution : India : Meghalaya Garo Hills and Ri-Bhai Hills districts): Andhra Pradesh, Arunachal pradesh, Assam, Bihar, Haryana, Himachal Pradesh, Maharashtra, Orissa, Punjab, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Hume (1888, p. 39) remarked "I strongly suspect that the birds entered by G. Austen as *albonotatus* from the Garo Hill would prove to belong to this form"

161. ***Caprimulgus affinis monticola*** Franklin

1831. *Caprimulgus monticolus* Franklin, *Proc. zool. Soc. Lond.,* : 116 (Ganges between Calcutta and Benares, India).

1970. *Caprimulgus affinis monticola,* Ali and Ripley, vol. 4 : 23.

Common name : Franklin's Nightjar (English), Chhippak (Hindi) and Dowang (Garo).

Material examined : Nil.

Diagnostic characters : Back without distinct black streaks. Outer tail-feathers all white except at tip in male while mottled throughout in female. Tarsus naked.

Distribution : India : Meghalaya (Garo Hills district): Throughout India except Andaman & Nicobar Islands, Arunachal Pradesh, Jammu & Kashmir. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal, Pakistan and Thailand.

Remarks : Hume (1988. p. 40) stated that Gowin-Austen recorded it from the Garo Hills and listed it as Caprimulgus monticolus Franklin.

Order APORDIFORMES

Family APODIDAE

Key to the subfamilies of the family Apodidae

Wings extending beyond tail..... Apodinae

Wings not extending beyond tail.....Hemiprocninae

Key to the genera of the family Apodidae

1. Sincipital plumes long and erectile forming a frontal crest..... ***Hemiprocne***

   Sincipital plumes not forming frontal crest 2

2. Shafts of tail-feathers spiny..... ***Chaetura***

   Shafts of the tail-fethers not spiny.....3

3. Anterior toes with 3 phalenges each.....4

   Second toes with 3, third toes with 4 and fourth toes with 5 phalanges.....***Collocalia***

4. All four toes directed forward, though first reversible. Tail not deeply forked.....***Apus***

   Toes arranged in pairs, 3rd and 4th outward, 1st and 2nd inward. Tail long and deeply forked.....
   .....***Cypsiurus***

Genus ***Collocalia*** G. R. Gray, 1840

162. ***Collocalia brevirostris brevirostris*** (Horsfield)

1840. *Hirundo brevirostris* Horsfield, *Proc. Zool. Lond.* : 155 (Assam).

1970. *Collocalia brevirostris brevirostris*, Ali and Ripley, vol. 4 : 26.

Common name : Himalayan Swiftlet (English).

Meterial examined : Nil.

Diagnostic character : Back and wings dark brown. Rump pale brown. Underparts greyish browh. Tail forked. Wing swallow-like narrow.

Distribution : India : Meghalaya (Ri-Bhoi Hills district): Arunachal Pradesh, Assam, Manipur, Mizoram, Sikkim and Uttar Pradesh. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Thailand.

Remarks : Observed it at Umsa, near Nongpoh, the Ri-Bhoi Hills.

Genus ***Chaetura*** Stephens, 1826

163. ***Chaetura (caudacuta) cochinchinensis*** Oustalet

1878. *Chaetura cochinchinensis* Oustalet, *Bull. Soc. Philom Paris,* (7), 2: 52 (Saigon, Cochinchina [=South Vietnam]).

1970.*Chaetura (caudacuta) cochinchinensis,* Ali and Ripley, vol. 4: 35.

Common name : Cochinchina Spinetail Swift (English).

Material examined : Nil.

Diagnostic characters : Back and wings blackish brown. Chin and throat smoky grey. Breast and belly dark brown.

Distribution : India : Meghalaya : Assam, Manipur, Mizoram and Nagaland. Elsewhere : Burma (Myanmar), Malaysia and Indochinese countries.

Remarks : Ripley (1982, p. 197) recorded it from Meghalaya.

164. ***Chaetura gigantea indica*** Hume

1873. *Chaetura indica* Anonymous = Hume, *Stray, Feathers,* 1 : 471 (Andaman Islands and Southern India).

1970. *Chaetura gigantea indica,* Ali and Repley, vol. 4 : 36.

Common name : Brownthroated Spinetail Swift (English).

Material examined : Nil.

Diagnostic characters : Head, wings and lower part of back glossy metallic black. Central part of back pale brown. A black spot infront of each eye and a white spot on either side of forehead. Chin and throat pale brown. Under tail -coverts white. Breast and abdomen dark brown with white-patch on the flanks above the thighs.

Distribution : India : Maghalaya (Khasi Hills district) : Assam, Goa, Karnataka, Kerala, Manipur, Mizoram, Nagaland and Tamil Nadu. Elsewhere : Bangladesh, Burma(Myanmar), Indochinese countries, Sri Lanka and Thailand.

Remarks : Hume (1888, p.30) reported it from the Khasi Hills.

Genus **Apus** Scopoli, 1777

165. ***Apus pacificus leuconyx*** (Blyth)

1845. *Cypselus leuconyx* Blyth, *J. Asiat. Soc. Beng.,* 14(1) : 212 (Calcutta, Calcutta dist. West Bengal, India).

1970. *Apus pacificus leuconyx,* Ali and Repley, vol. 4 : 49.

Common name : Himalaya whiterumped Swift (English).

Material examined : Nil.

Diagnostic characters : Rump white. Tail deeply forked. Bill black. Legs and feet purplish brown or purplish black.

Distribution : India : Meghalaya : Andhra Padesh, Arunachal Pradesh, Assam, Gujarat, Himachal Pradesh, Jammu&Kashmir, Karnataka, Kerala, Maharashtra, Manipur, Mizoram, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Nepal and Pakistan.

Remarks : Baker (1907) recorded it from Meghalaya.

166. ***Apus affinis subfurcatus*** (Blyth)

1849. *Cypselus subfurcatus* Blyth *J. Asiat. Soc. Beng.*, 18(2) : 807 (Penang).

1970. *Apus affinis subfurcatus,* Ali and Ripley, vol. 4 : 55.

Common name : Malay House Swift (English).

Material examined : Garo Hills district : 2 unsexed, coll.Dr. Anderson, date unknown; 1 unsexed, coll. Major Godwin-Austen, date not known.

Diagnostic characters : Back, wings, head and tail smoky black; rump white. Chin and throat white. Breast and abdomen smoky black. Wing long, narrow sickle-shaped. Tail slightly forked.

Measurements : 2 unsexed : Wing 138, 140, tail 44, 46; bill 6(2) from feathers.

Distribution : India : Meghalaya (Garo Hills district) : Assam, Manipur, Nagaland, Tripura.Elsewhere : Bangladesh, Burma (Myanmar), Malay Peninsula, Thailand, the Indochinese countries, The Indonesian Islands and China.

Remarks : Godwin-Austen (1907, p. 966) observed breeding habits of a few pairs in June near Shillong, the East Khasi Hills recorded it as *Cypsellus subfurcatus* Blyth.

Genus ***Cypsiurus*** Lesson, 1843

167. ***Cypsiurus parvus infumatus*** Sclater

1865. *Cypselus infumatus* Sclater, *Proc. Zool. Soc. Lond.* : 602 (Benjermassing, Borneo).

1970. *Cypsiurus parvus infumatus,* Ali and Ripley, vol 4 : 57.

Common name : Eastern Plam Swift (English).

Material examined : Garo Hills District : 1 unsexed, Garo Hills, coll. and date not known.

Diagnostic characters : Upper back blackish brown. The wings and tail almost black with a slight gloss. Chin and throat greyish; breast and abdomen dark brown. Tail less forked. Toes arranged in pairs, 3rd and 4th toes upward, the 1st and 2nd inward.

Measurements : 1 unsexed : Wing 116, tail 30 (inner)/55(outer),Bill.7.

Distribution : India : Meghalaya (Garo Hills district) :Arunchal Pradesh, Assam, Manipur, Mizoram, Nagaland and Tripura. Elsewhere : Bangladesh, Burma(Myanmar), Hainan Island, Indonesia, Malay Peninsula, Tambelan Island and Thailand.

Genus ***Hemiprocne*** Nitzsch, 1829

168. ***Hemiprocne longipennis coronata*** (Tickell)

1833. *Hirundo coronata* Tickell, *J. Asiat. Soc. Beng.*, 2 : 580 (Jungles of Borabhum = Barahabhum, Purulia dist. West Bengal and Dholbhum = Dhalbhum, Singhbhum dist., Bihar, India).

1970. *Hemiprocne longipennis coronata,* Ali and Ripley, vol. 4 : 58.

Common name : Crested Tree Swift (English).

Material examined : Nil.

Diagnostic characters : A slender blue-grey swallow with a prominent backward curving frontal crest. In male, the chin, throat and sides of face chestnut colour while in female, the colour is lacking. Tail deeply forked. Bill horny black.

Distribution : India : Meghalaya (East Khasi Hills district): Throughout the Indian Union. Elsewhere : Bangladesh, Burma(Myanmar), Indochinese countreies, Nepal, Sri Lanka and Thailand.

Remarks : Observed it at Cherrapunji, the East Khasi Hills.

Order TROGONIFORMES

Family TROGONIDAE

Genus ***Harpactes*** Swainson, 1833

169. ***Harpactes erythrocephalus erythrocephalus*** (Gould)

1834. *Trogon erythrocephalus* Gould, *Proc. Zool. Soc. Lond.*, pt. 2 : 25 (Rangoon, Burma(Myanmar).

1970. *Harpactes erythrocephalus erythrocephalus*, Ali and Ripley, vol. 4 : 66.

Common name : East Pakistan Redheaded Trogon (English).

Material examined : East Garo Hills district : 1 ♂ Rongrenggiri, coll. Indo-German Expd., 9. i. 1957. Ri-Bhoi Hills district : 1 ♀, Nongpoh, *c.* about 2 miles North of Inspection Bungalow, coll. R. V. Sherard, 28. v. 1949.

Diagnostic characters : Size bigger than the Myna. In male, back and upper parts roughly brown; wings finely vermiculated black and white. Head, neck and breast deep crimson. Tail broad and long with black and white tips. Abdomen lighter crimson.

Measurements :	Wing	Tail	Bill
1 ♂	150	192	22
1 ♀	150	190	22

Distributuin : India : Meghalaya : (East Garo Hills and Khasi Hills and Ri-Bhoi Hills districts) : Tripura. Elsewhere : Bangladesh, Burma(Myanmar) and Thailand.

Remarks : Hume (1988, p. 41) recorded it from the Garo and Khasi Hills.

Order CORACIIFORMES

Family ALCEDINIDAE

Key to the genera of the family Alcedinidae

1. Plumage black and white ..... ***Ceryle***

   Plumage not black and white 2

2. Tail longer than bill.....3

   Tail shorter than bill.....4

3. Toes three.....***Ceyx***

   Toes four.....***Alceda***

4. Bill compressed, culmen flattened and grooved on either side.....***Pelargopsis***

   Bill not compressed, culmen rounded and not grooved.....***Halcyon***

Genus ***Ceryle*** Boie, 1828

170. ***Ceryle rudis leucomelanura*** Reichenbach

1851. *Ceryle leucomelanura* Reichenbach, *Handb. Spec. Orn.* : 21, pl. ccix b, f. 3488 (Ceylon=Sri Lanka).

1970. *Ceryle rudis leucomelanura,* Ali and Ripley, vol. 4 : 71.

Common name : Indian Pied Kingfisher (English) and Kilkila (Hindi).

Material examined : Nil.

Diagnostic characters : Plumage black and white. Bill long and compressed. Wings rather pointed. Tail longer than culmen. Easily identified by its spectacular habit of "standing on its tail", in mid-air, hovering over water.

Distribution : India : Meghalaya (South Garo Hills district) : Throughout the Indian main land. Elsewhere : Afganistan, Bangladesh, Bhutan, Burma (Myanmar), Nepal, Pakistan, Sri Lanka, Thailand and Vietnam.

Remarks : Observed it near Baghmara, the South Garo Hills.

Genus ***Alcedo*** Linnaeus, 1758

171. ***Alcedo hercules*** Laubmann

1845. *Alcedo grandis* Blyth, *J. Asiat. Soc. Beng.,* 14(1): 190 (Darjeeling=Darjiling, Darjiling district, West Bengal, India).

1970. *Alcedo hercules,* Ali and Ripley, vol. 4 : 74.

Common name : Blyth's or Great Blue Kingfisher (English).

Material examined : Nil.

Diagnostic characters : Small, blue-and-green Kingfisher with brilliant blue back and rump with white throat and deep rust coloured chest and abdomen.

Distribution : India : Meghalaya (East Garo Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim, Tripura and West bengal. Elsewhere : Bangladesh and Bhutan.

Remarks : Observed it near Rongrenggiri, the East Garo Hills.

172. ***Alcedo atthis bengalensis*** Gmelin

1788. *Alcedo bengalensis* Gmelin, *Syst., Nat.*, 1(1): 450 (Bengal).

1970. *Alcedo atthis bengalensis,* Ali and Ripley, vol. 4 : 76.

Common name : Indian Small Blue Kingfisher (English), Chhota Kilkila (Hindi) and Masilengga (Garo).

Material examined : West Garo Hills district : 1 ♀, Kherapara, coll.. N. Majumdar, 21, xi. 1988. Ri-Bhoi Hills district: 1 ♂ Byrnihatr, coll. N. Majumdar, coll. .A. K. Mandal, 26.xi.1988.

Diagnostic characters : A small blue Kingfisher with a white patch on side of neck. Throat while. Chest and belly light rusty coloured.

Measurements :	Wing	Tail	Bill [from the skull]
2 ♂	72(2)	31,34	42,43
1 ♀	67	29	42

Distribution : India : Meghalaya (West Garo Hills, Jaintia Hills and Khasi Hills districts) : Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Nepal and Pakistan.

173. ***Alcedo meninting coltarti*** Baker

1919. *Alcedo meninting coltarti* Baker, *Bull. Brit. Orn. Cl.*, 39:39 (Saddya, Assam).

1970. *Alcedo meninting coltarti,* Ali and Ripley, vol. 4 : 78.

Common name : Assam Blue-eared Kingfisher (English) and Nita machhranga (Hindi).

Material examined : East Garo Hills district : 1 ♀, Tasek, coll. A. K. Mondal, 8.xii.1988.

Diagnostic characters : Back deep purplish blue. Ear-coverts blue in adult. Bars of forehead and crown always tipped greenish blue. Upper mandible blackish or horny brown, lower brownish orange. Legs, feet and claws orange-coral.

Measurements : 1 ♀ : Wing 64, tail 29, bill 44.

Distribution : India : Meghalaya (East Garo Hills district) : Assam, Goa, Karnataka, Manipur, Orissa, Nagaland, Tamil Nadu, Tripura and West Bengal.. Elsewhere : Bangladesh, Nepal, Bhutan, Burma (Myanmar) Indochinese countries and Thailand.

Genus ***Ceyx*** Lacepede, 1799

174. ***Ceyx erithacus erithacus*** (Linnaeus)

1758. *Alcedo erithaca* Linnaeus, *Syst. Nat.*, ed 10, 1 : 115 (Benghala West Bengal).

1970. *Ceyx erithacus erithacu,* sli and Ripley, vol. 4 : 81.

Common name : Indian Threetoed Forest Kingfisher (English).

Material examined : Nil.

Diagnostic characters : Crown and nape deep rust. Mantle purple blue. Rump brilliant amethyst. Chin and throat light yellowish. Breast, abdomen and vent orange-yellow. Bill and legs coal-red.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Arunachal pradesh, Assam, Goa, Karnataka, Kerala, Manipur, Mizoram, Nagaland, Sikkim and Tamil Nadu. Elsewhere: Bangladesh, Bhutan, Burma (Myanmar), China, Hainan, Indochinese countries, Malay Peninsula, Nepal and Thailand.

Remarks ; Hume (1888, p. 45)remarked "Occurs in the Garo and Khasi Hills" and listed it as *Ceyx tridactylus* Pallas.

Genus ***Pelargopsis*** Gloger, 1842

175. ***Pelargopsis capensis capensis*** (Linnaeus)

1766. *Alcedo capensis* Linnaeus, *Syst. Nat.* ed. 12, 1, : 180. (Cape of Good Hope = Chandernagar, *fide* Stresemann, 1952, *Ibis* 94: 517-21).

1970. *Pelargopsis capensis capensis,* Ali and Ripley, vol. 4 : 84.

Common name : Brownheaded Storkbilled Kingfisher (English). Badami Kourilla (Hindi) and Masilegga (Garo).

Material examined : East Garo Hill district : 1 ♂, Sarengma, c. 10 km. N. of Dudnai, coll. Z.S.I. party, 1. vii. 1949.

Diagnostic characters : A pigeon-like with enormous blood-red dagger-shaped bill. Head dark greyish brown and the back with brilliant pale greenish blue. A yellowish collar on hindneck.

Measurements : 1 ♂ : Wing 151, tail 94, bill 91.

Distribution : India : Meghalaya (East Garo Hills and Khasi Hills districts): Assam, Gujarat, Madhya Pradesh, Manipur, Nagaland, Sikkim, Uttar Pradesh, West Bengal and entire Peninsular India. Elsewhere : Bangladesh, Bhutan, Nepal and Sri Lanka.

Remarks : Hume (1888, p.44) stated that Godwin-Austen recorded this bird from the Khasi Hills and listed as *Pelargopsis gurial* Pears.

Genus ***Halcyon*** Swainson, 1821

176. ***Halcyon smyrnensis perpulchra*** Madarasz

1904. *Halcyon perpulchra* Madarasz, *Ann. Mus. Nat. Hungar.*, 2: 85 (Singapore).

1970. *Halcyon smyrnensis perpulchra,* Ali and Ripley, vol. 4 : 92.

Common name : Eastern Whitebreasted Kingfisher (English).

Material examined : East Garo Hills district : 1 ♂, Rangrenggiri. coll. A. N. Fernandez, 22.i. 1957.

Diagnostic characters : Size larger than the Myna. Back torquise-blue; head, neck and belly pale chocolate-brown. Wing with white wing patch. Chin, throat and centre of breast glistening white. Bill long, heavy any pointed coral-red.

Measurements : 1 ♂, Wing 125, tail 82, bill 65.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Andhra Pradhesh, Assam, Bihar, Madhya Pradesh, Manipur, Nagaland, Orissa, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China. Hainan, Indochinese countries, Malay Peninsula, Taiwan and Thailand.

Remarks : Godwin-Austen (1870, p. 97) recorded it from the Khasi Hills and listed it as *Chrysophlegma flavinucha* Gould.

Family MEROPIDAE

Key to the genera of the family Meropidae

Breast and throat feathers not elongated ..... ***Merops***

Breast and throat feathers elongate, loose and coloured differently from the surrounding plumage..... ..... ***Nyctyornis***

Genus ***Merops*** Linnaeus, 1758

177. ***Merops leschenaulti leschenaulti*** Vieillot

1817. *Merops Leschenaulti* Vieillot, *Nouv. Dict. d' Hist. Nat.* 14: 17 (Java, errore = Ceylon = Sri Lanka).

1970. *Merops leschenaulti leschenaulti,* Ali and Ripley, vol. 4 : 99.

Common name : Chestnut headed Bee-eater (English).

Material examined : West Garo Hills district : 1 ♂, Kherapara, coll. N. Majumdar, 20.xi. 1988.

Diagnostic characters : Size equal to Bulbul. Crown, hindneck and upperback bright cinnamon-chestnut. Chin and throat yellow boardered by a rufous and black gorget. Lowerback, wings, breast, belly and tail grass-green. Bill black, slender, curved and pointed.

Measurements : 1 ♂ : Wing 105, tail 80, bill 39.

Distribution : India : Meghalaya (West Garo Hills diatrict): Arunachal Pradesh, Assam, Bihar, Goa, Karnataka, Kerala, Manipur, Nagaland, Orissa, Tamil Nadu, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Indochinese countries, Malay Peninsula, Nepal, Sri Lanka, and Thailand.

178. ***Merops philippinus philippinus*** Linnaeus

1766. *Merops philippinus* Linnaeus, *Syst. Nat.*, ed. 12, 1 : 183 (Philippine Islands).

1970. *Merops philippinus philippinus,* Ali and Ripley, vol. 4 : 106.

Material examined : Nil.

Diagnostic characters : Back bright green. Bill slender, curved and black. A black stripe from back of bill through the eyes to the ear-coverts; throat and breast deep chestnut. Rump and tail bright cerulean-blue.

Distribution : India : Meghalaya (West Garo Hills district): Andaman & Nicobar Islands, Andhra Pradesh, Assam, Bihar, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Sikkim and Uttar Pradesh. Elsewhere : Bangladesh, Burma (Myhanmar), Indochinese countries, Indonesian Islands, China, Malay Peninsula, Pakistan, Sri Lanka and Thailand.

Remarks : Observed it at Kherapara, the West Garo Hills.

179. ***Merops orientalis orientalis*** Latham

1801. *Merops orientalis* Latham, *Index Orn, Suppl.* : xiii (India = Pondicherry, India, *vide* Stresemann, 1952. *Ibis* 94: 515).

1970. Merops orientalis orientalis, Ali and Ripley, vol. 4 : 109.

Common name Indian Small Green Bee-eater (English) and Harrial (Hindi).

Material examined : Nil.

Diagnostic characters : Back, wings and underparts grassgreen. Head and neck tinged with reddish brown. Central pairs of tail-feathers project beoynd tail as blunt pins. Bill slender, long and slightly curved. Chin and throat verditer blue bordered by a black gorget.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the Indian mainland except Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland and Tripura. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Observed it at Barangapara, the West Garo Hills.

180. ***Merops orientalis birmanus*** Neumann

1910. *Merops viridis birmanus* Neumann, *Orn. Monatsb.*, 18 : 80 (Myingan [=Myingyan], Irawaddy River, Burma).

1970. *Merops orientalis birmanus,* Ali and Ripley, vol. 4 : 110.

Common name : Burmese Small Green Bee-eater (English) and Takachora (Garo).

Material examined : West Garo Hills district : 3 ♂ and 1 ♀, Kherapara, coll. N. Majumdar, 17.18 and 19.ix. 1988.

Diagnostic characters : A slender grass-green bird. Upper parts of head and neck ferrugious. Bill slender, long slightly curved; black central pairs of tail-feathers projecting as blunt pins beyond.

Measurements :	Wing	Tail		Bill
		Central	Outer	
2 ♂	93,97	130,145	73,74	31,32
1 ♀	96	141	75	33

Distribution : India : Meghalaya (West Garo Hills district) : Assam, Manipur, Nagala and Tripura. Elsewhere : Burma (Myanmar), China, Indochinese countries, Thailand and Vietnam.

Genus ***Nyctyornis*** Jardine and Selby, 1830

181. ***Nyctyornis athertoni athertoni*** (Jardine & Selby)

1830. *Merops athertoni* Jardine & Selby, *Ill Orn.*, 2, pl. 58 and text (India = near Bangalore, Karnataka).

1970. *Nyctyornis athertoni athertoni,* Ali and Ripley, vol. 4 : 112.

Common name : Bluebearded Bee-eater (English).

Material examined : Jaintia Hills district: 1 ♀, Kopli Forest, coll. E.D. Albinus, 27.i. 1975.

Diagnostic characters : Back, wings and tail grass-green. Forehead pale greenish blue. Upperbreast light blue. Lower breast, abdomen and belly rusty buff, broadly streaked with green.

Measurements : 1 ♀, Wing 132, tail 124, bill 49.

Distribution : India : Meghalaya (Garo Hills, Jaintia Hills and Khasi Hills districts) : Andhra Pradesh, Assam, Bihar, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Nagaland, Orissa, Sikkim, Punjab, Tamil Nadu, Tripura Uttar Pradesh and West Bengal.: Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Thailand, Indochinese countries Hainan Island.and Nepal

Remarks : Baker (1907 , p. 965) recorded it from Garo Hills. Hume (1888, p.42) reported it from the Khasi Hills.

Family CORACIIDAE

Key to the genera of the family Coraciidae

Bill compressed; breadth at gape about half of the length of culmen.....***Coracias***

Bill short, broad and swollen at base: breadth at gape about equal to culmen..... ***Eurystomus***

Genus ***Coracias*** Linnaeus, 1758

182. ***Coracias benghalensis affinis*** Horsfield

1839. (1840). *Coracias affinis* Horsfield, *Proc. zool. Soc, Lond.* pt. 7 : 164 (Assam).

1970. *Coracias benghalensis affinis,* Ali and Ripley, vol. 4 : 119.

Common name : Burmese Roller (English) and Nilkant (Hindi).

Material examined : Ri-Bhoi Hills district : 1 ♂ Byrnihat, coll. E.D. Albinus, 31.vii. 1973. West Garo Hills district: 1 ♂ Kherapara, coll. R. K. Ghose, 19.vii. 1988; 1 ♀, coll. N. Majumdar, 21.xi. 1988; 1 ♀, Selbergirli 5 km. from Rongram, coll. S. Biswas, 25.ii. 1975.

Diagnostic characters : Back brownish rufous. Crown light blue. Throat and breast rufous-brown streaked with white. Abdomen and vent pale blue. Underwing-coverts deep blue. Bill almost black.

Measurements :	Wing	Tail	Bill
2 ♂	196,200	127, 130	47,49
2 ♀,	192,206	131(2),	42,44

Distribution : India : Meghalaya (Ri-Bhoi Hills and West Garo Hills and Khasi Hills districts) : Assam, Manipur, Nagaland Sikkim and Tripra. Elsewhere : Bangladesh, Bhutan, Burma(Myanmar), China, Indochinese counhtries, Nepal and Thailand.

Remarks : Baker (1907 , p.965) obtained it from the Khasi Hills.

Genus ***Eurystomus*** Vieillot, 1816

183. ***Eurystomus orientalis cyanicollis*** Vieillot

1819. *Eurystomus cyanicollis* Vieillot, *Nouv. Dict. d'Hist.* Nat., 29: 425 ('les Indes' = Chandernagor, Bengal, *fide* Stresemann, 1952, *Ibis* 94 : 511, 519).

1970. *Eurystomus orientalis cyanicollis*, Ali and Ripley, vol. 4 : 120.

Common name : Himalayan Broadbilled Roller (English).

Material examined : Nil.

Diagnostic characters : Back dark greenish brown and purple blue-black. Head blackish. Bill broad, orange-red. A large pale blue roundish patch on wing.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Haryana, Himachal Pradesh, Manipur, Nagaland, Sikkim and Uttar Pradesh. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Japan, Indochinese countries, Nepal and Thailand.

Remarks : Ripley (1982, p.215) reported it from Meghalaya.

Family UPUPIDAE

Genus ***Upupa*** Linnaeus, 1758

184. ***Upupa epops longirostris*** Jerdon

1862. *Upupa longirostris* Jerdon, *Bds. India*, 1 : 393 (Burma = Myanmar).

1970. *Upupa epops longirostris*, Ali and Ripley, vol. 4 : 128.

Common name : Burmese Hoopoe (English) and Dopilvivi (Garo).

Material examined : Nil.

Diagnostic characters : Size equal to Myna. Head, upper back, throat and breast fawn colour. Lower back, wings and tail with black and white Zebra markings. Crown with prominent black and while-tipped crest. Bill long, slender and curved.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Manipur, Orissa and Tripura. Elsewhere : Bangladesh, Burma (Myanmar), Indochinese countries, Malay Peninsula, Sumatra and Thailand.

Remarks : Hume (1888, p. 87) recorded it from the Khasi Hills and listed it as *Upupa epops* Linnaeus.

Family BUCEROTIDAE

Key to the genera of the family Bucerotidae

1. Casque large in adults, higher than the upper mandible ..... ***Anthracoceros***
   Casque small or absent, lower than the upper mandible 2
2. Casque absent but a few oblique ridges on sides of base of upper mandible ..... ***Aceros***
   Casque small and compressed.....3
3. Casque composed of transverse ridges; tail entirely white .....***Rhyticeros***
   Upper ridges of casque curving down in front; tail black with white-tipped .....***Ptilolaemus***

Genus ***Ptilol aemus*** Ogilvie-Grant, 1892

185. ***Ptilolaemus tickelli austeni*** (Jerdon)

1872. *Anorhinus* [sic] *austeni* Jerdon, *Ibis* : 6 (Asalu, Cachar Hills).

1982. *Ptilolaemus tickelli austeni*, Ripley : 218.

Common name : Whitethroated Brown Hornbill (English).

Material examined : Nil.

Diagnostic characters : In male, head and back dark brown. A small sharp-edged yellowish casque on the culmen. Cheeks, throat and sides of neck white; foreneck pale rufous. Tail long, graduated, black and broadly tipped with white excepting the middle pair of rectrices which are brown and lack white tips. In female, sides of neck concolorous with crown. Underparts more grey-brown, less rufous on foreneck.

Distribution : India : Meghalaya (Khasi Hills district) : Assam.

Remarks : Godwin-Austen (1872, p. 143) shot this bird in the N. Cachar Hills near Asalu. He also mentioned that Jerdon would describe it as a new species under the name of *Anorhinus Austeni.*

Genus ***Aceros*** J. E. Gray, 1844

186. ***Aceros nipalensis*** (Hodgson)

1829. *Buceros nipalensis* Hodgson, *Asiat. Res.*, 18(1) : 178, 2 pls. (Nepal).

1970. *Aceros nipalensis*, Ali and Ripley, vol. 4 : 135.

Common name : Rufousnecked Hornbill (English).

Material examined : Nil.

Diagnostic characters : In male, back black, glossed with dark green. Head, neck and breast rufous, changing to maroon on abdomen and blackish maroon farther down. Outer primaries tipped-white. Terminal half of long graduated tail white. Chin, cheeks and throat naked, bright scarlet. In female, all black.

Distributioln : India : Meghalaya (Khasi Hills district) :Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland and Sikkim. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Indochinese countries, Nepal and Thailand.

Remarks : Baker (1907, p. 966) obtained it from the Khasi Hills.

Genus ***Rhyticeros*** Reichenbach, 1849

187. ***Rhyticeros undulatus ticehursti*** Deignan

1941. *Rhyticeros undulatus ticehursti* Deignan, *Auk*, 58 : 397 (Huai Oi, c 14 km. North of the Bank Pak Li, Nan Province, Thailand).

1970. *Rhyticeros undulatus ticehursti*, Ali and Ripley, vol. 4 : 137.

Common name : Assam Wreathed Hornbill (English).

Material examined : Nil.

Diagnostic characters : In male, back glossy black. Naked throat-patch bright yellow. Tail all white. Forehead, crown and nape deep chestnut passing into black on hindneck. In female, all black except tail which is white.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), Indochinese countries, Malay Peninsula and Thailand.

Remarks : Baker (1907, p. 966) and Hume (1888, p. 52) recorded this bird from the Khasi Hills and listed it as *Rhyticeros undulatus* Shaw.

Genus ***Anthracoceros*** Reichenbach, 1849

188. ***Anthracoceros malabaricus malabaricus*** (Gmelin)

1788. *Buceros malabaricus* Gmelin, *Syst. Nat.*, 1(1) : 359, (India, Chandernagore, *apud* Baker).

1970. *Anthracoceros malabaricus malabaricus*, Ali and Ripley, vol. 4 : 140.

Common name : Indian Pied Harnbill (English) and Ringck (Garo).

Material examined : Nil.

Diagnostic characters : Back, head, neck and upper breast black. Underparts white. Ponderous pale-yellow and black bill surmounted by a ridge-like casque. Outer tail-feathers black, only white at the ends.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Haryana, Madhya Pradesh, Manipur, Nagaland, Orissa, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), and Nepal.

Remarks : Hume (1888, p. 52) reported this bird from the Garo Hills and the Khasi Hills and listed it as *Hydrocissa affinis.*

189. ***Anthracoceros coronatus coronatus*** (Boddaert)

1783. *Buceros coronatus* Boddaert, *Table Pl. enlum.* : 53 (Malabar, Kerala, India).

1970. *Anthracoceros coronatus coronatus,* Ali and Ripley, vol. 4 : 142.

Common name : Malabar Pied Hornbill (English) and Dhan chiri (Hindi).

Material examined : Nil.

Diagnostic characters : In male, crown, back, wing and tail bluish black. Neck black. Underparts white. Bill with a high redge-like casque ending in front in a single point. Tip of the primaries and rectrices white. Female smaller than the male with the bare parts differs in colour.

Distribution : India : Maghalaya (West Khasi Hills district) : Andhra Pradesh, Madhya Pradesh, Maharashtra, Karnataka, Kerala, Tamil Nadu, Uttar Pradesh and West Bengal. Elsewhere : Sri Lanka.

Remarks : Godwin-Austen (1870, p. 266) reported it from the West Khasi Hills and listed it as *Hydrocissa coronata* Bodd aert.

Order PICIFORMES

Family CAPITONIDAE

Genus ***Megalaima*** G. R. Gray, 1842

190. ***Megalaima virens marshallorum*** Swinhoe

1870. *Megalaima marshallorum* Swinhoe, *Ann. Mag. Nat. Hist.*, 6(4) : 348 (Himalayas, Simla-Almora dist., India).

1970. *Megalaima virens marshallorum*, Ali and Ripley, vol. 4 : 147.

Common name : Himalayan Great Barbet (English).

Material examined : Nil.

Diagnostic characters : Head maroon-brown with violet blue-black. Back, wings and tail grass-green. Chin, throat and upperbreast olive-brown and blue. Lower breast and abdomen yellow with a bright scarlet patch under the tail (coverts). A yellow-streaked hindneck collar prominent. Bill yellow surrounded by prominent bristles at base.

Distribution : India : Maghalaya (Khasi Hills district) : Himachal Pradesh, Jammu & Kashmar and Uttar Pradesh. Elsewhere : Nepal and Pakistan.

Remarks : Hume (1888, p. 66) recorded it from the Khasi Hills.

191. ***Megalaima virens magnifica*** Baker

1926. *Megalaima virens magnifica* Baker, *Bull. Brit. Orn. Cl.*, 47 : 43 (Machi, Manipur).

1970. *Megalaima virens magnifica*, Ali and Ripley, vol. 4 : 149.

Common name : Assam Great Barbet (English) and Dobutok (Garo).

Material examined : West Garo Hills district : 1 ♂ Dogranggiri, Rongram, coll. S. Biswas, 10. xi. 1973.

Diagnostic characters : Entire head violet blue-black without any green tinge. Upper back maroon-brown. Lower back, wings and tail bluish green. Breast olive-brown. Abdomen marked with blue-yellow longitudinal stripes. Undertail-coverts bright scarlet.

Measurements : 1 ♂ : Wing 45, tail 96, bill 46.

Distribution : India : Meghalaya (West Garo Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland and Sikkim. Elsewhere : Bangladesh, Bhutan and Nepal.

192. ***Megalaima lineata hodgsoni*** Bonaparte

1850. *Megalaima hodgsoni* Bp.=Bonaparte, *Consp. Av.*, 1 : 144 (Nepal, restricted to Simra, Central Nepal, by Ripley, 1950, *Proc. Biol. Soc. Washington*, 63 : 102).

1970. *Megalaima lineata hodgsoni*. Ali and Ripley, vol. 4 : 154.

Common name : Eastern Lineated Barbet (English).

Material examined : East Garo Hills district : 1 ♂ and 1 unsexed, Rongrenggiri, coll. A.N. Fernandez, 14 and 23.i. 1957; 2 ♀, Rongrenggiri, c 4km. East of Williamnagar, coll. N. Majumdar,

27. and 28.xi. 1988. West Garo Hills district : 1 ♂ Kherapara, coll. R. K. Ghose, 21.vii. 1988; 1 ♂ and 1 ♀, coll. N. Majumdar, 29.xi. 1988. 1 ♂ Deranggiri, coll. S. Biswas, 10.xi. 1973: East Khasi Hills district : 1 ♂ Lailad Forest, coll. E.D. Albinus, 20.v. 1980;

Diagnostic characters : Size slightly larger than the preceding bird. Head, neck, throat and upperbreast brown coarsely streaked with whitish. Back, wings and abdomen grass-green; a naked orange coloured patch around eye extending to base of bill.

Measurements :	Wing	Tail	Bill
2 ♂	129, 131	76, 82	31, 34
2 ♀,	132,136	85, 87	34, 35

Distribution : India : Meghalaya (East and West Garo Hills and East Khasi Hills districts) : Assam, Bihar, Manipur, Orissa, Sikkim, Tripura and West Bengal. Elsewhere : Nepal, Bhutan, Bangladesh, Burma (Myanmar), Thailand, Indochinese countries and Malaya Peninsula.

193. ***Megalaima franklinii franklinii*** (Blyth)

1842. *Bucco Franklinii* Blyth, *J. Asiat Soc. Beng.*, 11 (1) : 167 (Darjeeling = Darjiling, Darjiling dist., West Bengal, India).

1970. *Megalaima franklinii franklinii,* Ali and Ripley, vol. 4: 157.

Common name : Goldenthroated Barbet (English).

Material examined : Nil.

Diagnostic characters : Size equal to Myna, Entire plumage grass-green, excepting head; crown bright golden and crimson; ear-coverts grey and a broad black stripe above eye from bill to nape. Chin and throat golden yellow; and orange spot on each side of base of bill near gape.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim an West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Vietnam.

Remarks : Hume (1888, p. 68) collected it from Moufloring and Shillong, the East Khasi Hills.

194. ***Megalaima asiatica asiatica*** (Latham)

1790. *Trogon asiaticus* Latham, Index Orn., 1 : 201 (India = Calcutta, Calcutta district, West Bengal, India *fide* Baker).

1970. *Megalaima asiatica asiatica,* Ali and Ripley, vol. 4 : 158.

Common name : Bluethroated Barbet (English).

Material examined : East Garo Hills district : 2 ♂, Rongrenggiri, coll. A. N. Fernandez, 22.i. 1956 and 16.i. 1957. West Garo Hills district : 1 ♂ and 1 ♀, Kherapara coll. N. Majumdar, 21 and 22.xi. 1988. Ri-Bhoi Hills district : 1 ♀, Nongpoh, coll. H. Khajuria, 22.xii. 1956; 1 ♂, between Umsa Nongkharai and Shillong, coll. H. Khajuria, 27.xii. 1956; 1 ♂, Umran G. S. Road, coll. E. D. Albinus, 22.i.1981.

Diagnostic characters : Size equal to the preceding bird. Entire plumage except head chiefly grass-green; forehead crimson, then yellowish followed by a transverse black band above the eyes; crown

behind this crimson, with black streak on either side. A short supercilium, feathers round eye, ear-coverts, chin and throat verditer-blue. A crimson spot on each side of base of lower mandible. Bill heavy conical and base of bill surrounded by conspicuous black bristles.

Measurements :	Wing	Tail	Bill
2 ♂,	102, 105	64(2)	25, 27
2 ♀,	101, 106	57, 64	27, 29

Distribution : India : Meghalaya (East and West Garo Hills and Ri-Bhoi Hills districts) : Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Manipur, Mizoram, Nagaland, Punjab, Sikkim, Uttar Pradesh, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Pakistan.

195. ***Megalaima australis cyanotis*** (Blyth)

1847. *Bucco cyanotis* Blyth, *J. Asiat. Soc. Beng.*, 16(1) : 465 (Arakan, Burma, = Myanmar).

1970. *Megalaima australis cyanotis*, Ali and Ripley, vol. 4: 160.

Common name : Indian Blue-eared Barbet (English).

Material examined : Nil.

Diagnostic characters : Head verditer-blue; lores, forehead and forecrown black. Hindcrown cobalt blue. Ear-coverts pale verditer-blue. Bill dark horney brown. Leg and feet dull green.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam. Manipur, Nagaland, Sikkim and West Bengla. Elsewhere : Bangladesh Bhutan, Burma (Myanmar), Indochinese countries, Nepal and Thailand.

Remarks : Hume (1888, p.69) recorded it from the Khasi Hill.

196. ***Megalaima haemacephala indica*** (Latham)

1788. *Bucco indicus* Latham, *Index Orn.*, 1 (1) : 205 (India).

1970. *Megalaima haemacephala indica,* Ali and Ripley, vol. 4 : 163.

Common name : Copper smith (English) and chhota Basanth (Hindi).

Material examined : Nil.

Diagnostic characters : Size slightly larger than the Sparrow. Back grass-green with throat yellow; breast and forehead crimson. Abdomen and vent green streaked yellowish. Tail short and trancated.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Throughout the Indian mainland except Kerala.Mr. Elsewhere : Bangladesh,Bhutan, Indochinese countries, Malaya, Nepal, Pakistan, Yunnan and Thailand.

Remarks : Seen it at Nongpoh, the Ri-Bhoi Hills

Family PICIDAE

Key to the genera of the family Picidae

1. Shaft of tail-feathers soft and flexible 2
   Shaft of tail-feathers stout and rigid 4

2. Nostrils concealed by feathers 3
   Nostrils not concealed by feathers; party covered by a membran..... ***Jynx***
3. Orbital part feathered; toes four ..... ***Picumnus***
   Orbital part naked; toes three ..... ***Sasia***
4. Primaries spotted or banded 5
   Primaries neither spotted nor banded..... 10
5. Nostrils concealed by feathers 6
   Nostrils exposed..... 8
6. Toes mostly four..... 7
   Toes three..... ***Gecinulus***
7 Mantle wholly or partly green..... ***Picus***
   Mantle black and white..... ***Picoides***
8. Mantle rufous or crimson banded..... 11
   Mantle golden-olive or crimson; not banded..... 9
9. Hallux large about half-length of 2nd toe ..... ***Chrysocolaptes***
   Hallux small; about one third of 2nd toe or lacking..... ***Dinopium***
10. Inner secondaries with a large spots..... ***Hemicircus***
    No spots on inner secondaries..... ***Mulleripicus***
11. Culmen nearly straight, tip truncated..... ***Blythipicus***
    Culmen curved, tip pointed ..... ***Micropternus***

Genus ***Jynx*** Linnaeus, 1758

197. ***Jynx torquilla chinensis*** Hesse

1911. *Jynx torquilla chinensis* Hesse, *Orn. Monatsb.*, 19: 181 (China, Tsingtao, Shantung).

1970. *Jynx torquilla chinensis,* Ali and Ripley, vol. 4 : 170.

Common name : chinese Wryneck (English) and Gardan eyengtha (Hindi).

Material examined : Nil.

Diagnostic characters : Back silvery dark grey-brown, streaked and vermiculated with more blackish and less fulvous; whitish below. Dark markings on nape, back and scapulars. Darker ochre on throat and upper breast, the vermiculation and spots on the upperparts averaging slightly coarser.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma, (Myanman) China, Indochinese countries and Thailand.

Breeds from the Southern end of Lake Baikal, N. Manchuria and the Amur South to N. Szechuan and the Yangtze Valley.

Remarks : Hume (1888, p. 65) collected it from the Garo and Khasi Hills and listed it as *Jynx torquilla* Linnaeus.

Genus ***Picumnus*** Temminck, 1825

198. ***Picumnus innominatus innominatus*** Burton

1836. *Picumnus innominatus* Burton, *Proc. Zool. Soc. Lond.*, (3): 154. (Himalayas = Sikkim).

1970. *Picumnus innominatus innominatus,* Ali and Ripley, vol. 4 : 172.

Common name : Northern speckled Piculet (English).

Material examined : Ri-Bhoi Hills district : 1 ♂ Barapani *c.* 14 km N. of Shillong, coll. H.L. Hiteshi, 29.v. 1949; 1 ♂ Umsa Nongkhari, Nongpoh, coll. H. Khajuria, 14.xii. 1956.

Diagnostic characters : In male, back and mantle bright yellow-olive. Forecrown black and orange. A broad blackish olive band behind eye; a dark moustachial stripe under the lower band. Underparts yellowish white with bold black spots. In female, the whole crown yellow-olive, concolorous with black. Other characters are similar to male.

Measurements : 2 ♂ : Wing 56, 58; tail 29, 30; bill [from the skull] 12(2).

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Assam, Himachal Pradesh, Jammu & Kashmir, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Nepal and Pakistan.

Genus ***Sasia*** Hodgson, 1836

199. ***Sasia ochracea reichenowi*** Hesse

1911. *Sasia ochracea reichenowi* Hesse, *Orn. Monatsb.*, 19 : 181 (Burma (Myanmar), type from Thayetchaung, Tenassserim).

1970. *Sasia ochracea reichenowi,* Ali and Ripley, vol. 4 : 176.

Common name : Burmese Rufous Piculet (English).

Material examined : Nil.

Diagnostic characters : In male, back deep rufous and pale olive overall. Forehead with rufescent golden; a short white supercilium. Tail black and stumpy. Underparts with orange-rufous. In female, similar to male, but lacking the golden forehead which is concolorous with the crown.

Distribution : India : Meghalaya : Assam, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh, Burma (Myanmar), Thailand and Vietnam.

Remarks : Ripley (1982, p. 227) reported it from Meghalaya.

Genus ***Micropternus*** Blyth 1845

200. ***Micropternus brachyurus phaioceps*** Blyth

1845. *Micropternus phaioceps* Blyth, *J. Asiat. Soc. Beng.*, 14(1) : 195 (Arakan, Burma (Myanmar), [Near Calcutta, Calcutta district, West Bengal, India, *vide* Ticehurst, *J. Bombay nat. Hist. Soc.*, 35 : 32].

1970. *Micropternus brachyurus phaioceps,* Ali and Ripley, vol. 4 : 178.

Common name : Eastern Rufous Woodpecker (English).

Material examined : East Garo Hills district : 1 ♀, Rongrenggiri, Reserve Forest, coll. S. Biswas, 22.iv. 1973. Ri-Bhoi Hills district : 1 unsexed, Nongpoh, coll. R. V. Sherard, 15. v. 1949.

Diagnostic characters : Size slightly larger than the Myna. Entire plumage chestnut rufous, narrowly cross-barred with black on back, wings and tail. Feathers of throat pale-edged producing a streak or scaly pattern. Male differed from female by a crescent-shaped crimson patch on feathers under the eye.

Measurements : 1 ♀ : Wing 126, tail 62, bill 28.

Distribution : India : Meghalaya (East Garo Hills and Ri-Bhoi Hills districts) : Andhra Pradesh, Assam, Bihar, Madhya Pradesh, Manipur, Nagaland, Orisssa, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Thailand.

Genus ***Picus*** Linnaeus, 1758

201. ***Picus Myrmecophoneus*** Stresemann

1920. *Picus myrmecophoneus* Stresemann, *Verh. Orn. Ges. Bayern,* 14: 289 (Himalaya and Central India).

1970. *Picus myrmecophoneus,* Ali and Ripley, vol. 4 : 184.

Common name : Little Scalybellied Green Woodpecker (Emnglish).

Material examined : Nil.

Diagnostic characters : Size larger than the Myna. In male, back grass-green, rump bright yellow; greenish brown tail, barred with whitish. Crown and crest crimson, nape with orange-and-black patch. Prominent white supercilium from eye backwards, bordered above by a black line. Pale grey-brown ear-coverts, cheeks greyish white streaked with black. In female, similar to male but crown and crest black instead of crimson.

Distribution : India : Meghalaya (Khasi Hills district) : Throughout India except Arunchal Pradesh, Gujarat, Himachal Pradesh, Jammu & Kashmir, Manipur, Mizoram, Nagaland, Punjab, Tripura and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), Cambodia, Nepal, Sri Lanka, Thailand and Vietnam.

Remarks : Hume (1888, p. 62) recorded it from the Khasi Hills.

202. ***Picus canus hessei*** (Gyldenstolpe)

1916. *Gecinus canus hessei* Gyldenstolpe, *Orn. Monatsbr.,* 24 : 28 (Pak Koh and Denchai, N. Siam = Thailand).

1982. *Picus canus hessei,* Ripley : 229.

1978. *Picus canus hessei,* Majumdar, *J. Bombay nat. Hist. Soc.,* 75(3) : 924.

Common name : Blacknaped Green Woodpecker (English).

Material examined : East Garo Hills district : 2 ♂ Rangrenggiri, coll. A. N. Fernandez, 15 and 16.i. 1957. West Garo Hills district : 1 ♀, Kherapara, coll. N. Majumdar, 20.xi. 1988.

Diagnostic characters : Back dark green, rump with bright yellow. Wing dark-brown with white bars. Forehead and forecrown crimson. Hindcrown, occipital crest and nape black. Chin and throat greyish ashy with black malar stripe from lower mandible. Tail black imperfectly barred paler.

Measurements :	Wing	Tail	Bill
2 ♂:	143, 146	95, 97	41, 43
1 ♀:	144	100	42

Distribution : India : Meghalaya (East and West Garo Hills districts) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Orissa, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Indochinese countries, Nepal and Thailand.

203. ***Picus chlorolophus chlorolophus*** Vieillot

1818. *Picus chlorolophus* Vieillot, *Nouv. Dict. d'Hist. Nat.*, 26: 78 (Bengal).

1970. *Picus chlorolophus chlorolophus,* Ali and Ripley, vol. 4 : 193.

Common name : East Himalayan Small Yellownaped Woodpecker (English).

Material examined : East Garo Hills district : 1 ♂ Rongrenggiri, c 4 km. East of Williamnagar, coll. N. Majumdar, 1.xii. 1988. Ri-Bhoi Hills district 1 ♀, Umsa Nongkharai near Nongpoh, coll. H. Khajuria, 19.i. 1957.

Diagnostic characters : Size larger than the Myna. In male, back yellowish green; nuchal crest golden yellow. Wings green and maroon red. Forehead, supercilia and moustachial streak crimson. Tail brownish black. Chin and throat brown barred with whitish; breast olive-brown, belly and vent barred with brown and white. In female, similar to male, no crimson to forehead and malar stripe, but restricted to a short broad line behind eye to nape.

Measurements :	Wing	Tail	Bill [from the skull]
1 ♂	133	90	28
1 ♀	132	92	29

Distribution : India : Meghalaya (East Garo Hills, Khasi Hills and Ri-Bhoi Hills districts) : Arunachal Pradesh, Assam, Bihar, Manipur, Mizoram, Nagaland, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) Nepal and Thailand.

Remarks : Hume (1888, p. 62) received it from Godwin-Austen who had collected from the Khasi Hills.

Genus ***Dinopium*** Rafinesque, 1814

204. ***Dinopium benghalense benghalense*** (Linnaeus)

1758. *Picus benghalense* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 113 (Benghala = Chandernagor *vide* stresemann, 1952, *Ibis* 94 ; 517).

1970. *Dinopium benghalense benghalense,* Ali and Ripley, vol. 4 : 197.

Common name : Northern Goldenbacked Woodpecker (English), Katphora (Hindi) and Dotileng (Garo).

Material examined : Nil.

Diagnostic characters : In male, back golden yellow and neck black; chin, thorat and sides of neck black, finely streaked and stipped with black, more boldly on breast, crown and occipital crest

crimson. In female, similar to male, but forehead black stipped with white, only the occipital crest crimson.

Distribution : India : Meghalaya (West Garo Hills district) : Andhra Pradesh, Asam, Bihar, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Uttar Pradesh and West Bentgal. Elsewhere:Bangladesh, and Nepal.

Remarks : Seen it at Kherapara, the West Garo Hills.

205. ***Dinopium shorii shorii*** (Vigors)

1832. *Picus shorii* Vigors, *Proc. Zool. Soc. Lond.*, (1): 175 (Himalayas).

1970. *Dinopium shorii shorii,* Ali and Ripley, vol. 4 : 202.

Common name : Himalayan Goldenback threetoed Woodpecker (English).

Material examined : Nil.

Diagnostic characters : In male, back golden. Crown Crimson. Occipital crest and rump crimson. Tail black. Hindnesk black. Supercilium white. Breast and belly buffy white boldly streaked and scalloped with black. In female, forehead and forecrown blackish brown, crown crest black.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Haryana, Manipur, Nagaland, Tamil Nadu and Uttar Pradesh. Elsewhere : Bangladesh, Bhutan, Burma (Myanmer), and Nepal.

Remarks : Ripley (1982, p. 232) reported it from Meghalaya.

Genus ***Gecinulus*** Blyth, 1845

206. ***Gecinulus grantia grantia*** (Horsfield)

1840. (1839). *Picus (Chrysonotus) Grantia* Horsfield, *Proc. Zool. Soc. Lond.*, (7) ; 165 (Assam).

1970. *Gecinulus grantia grantia,* Ali and Ripley, vol. 4 : 205.

Common name : Paleheaded Woodpecker (English).

Material examined : Ri-Bhoi Hills district : 1 ♂ Nangpoh, coll. Z.S.I. party, 8.v. 1949.

Diagnostic characters : In male, back and wings dull crimson. Primary wing-feathers brown barred with buff. Forehead and sides of head pale golden olive-brown; sides of neck and nape golden olive-yellow. Crown with a crimson-pink patch. Tail brown and crimson. Chin and throat dark olive-yellow and rest of underparts brownish-olive. In female, similar to male, only lacking the crimson-pink patch on crown.

Measurements : 1 ♂ : Wing 128, tail 76, bill 27.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland and Sikkim. Elsewhere : Bhutan, Burma(Myanmar) and Nepal.

Remarks : Hume (1888, P. 63) reported this bird from the Garo Hills and the Khasi Hills and stated (ibid) that Godwin-Austen recorded it from the Garo Hills.

Genus ***Mulleripicus*** Bonaparte, 1854

207. ***Mulleripicus pulverulentus harterti*** Hesse

1911. *Mulleripicus pulverulentus harterti* Hesse, *Orn. Monatsb.*, 19: 182 (Type from Pya, Upper Chindwin River, Burma = Myanmar).

1970. *Mulleripicus pulverulentus harterti,* Ali and Ripley, vol. 4 : 206.

Common name : Assam Great Slaty Woodpecker (English).

Material examined : East Garo Hills district : 1 ♂, Rongrenggiri, coll. H. Khajuria, 9.ii. 1957; 1 ♂, 1 ♀, Tasek Songsak R.F., 2 and 5.vii. 1988.

Diagnostic characters : Back, wings, tail, head and neck slaty grey. Chin, throat and foreneck buffy yellow. In male, a short, broad crimson moustachial stripe which lacks in female.

Measurements :	Wing	Tail	Bill[from the feather]
2 ♂	232, 236	155, 157	63, 64
1 ♀	232	166	65

Distribution : India : Meghalaya (East Garo Hill district) : Assam and Manipur. Elsewhere : Bangladesh, Burma (Myanmar), Indochinese countries and Thailand.

Remarks : Hume (1888, p. 61) remarked "Godwin-Austen received this species from the Garo Hills"

Genus ***Picoides*** Lacepede, 1799

208. ***Picoides darjellensis*** (Blyth)

1845. *Picus (Dendrocopus) darjellensis* Blyth, *J. Asiat. Soc. Beng.*, 14(1) : 196 (Darjeeling and Nepal).

1970. *Picoides darjellensis darjellensis,* Ali and Ripley, vol. 4: 218.

Common name : Darjeeling Pied Woodpecker (English).

Material examined : Nil.

Diagnostic characters : Size equal to Myna. In male, back and middle tail-feathers black, outer feathers barred with white. Hind-crown and nape crimson. Breast and belly yellowish fulvous streaked with black. Vent crimson. In female, similar to male but hindcrown and nape black.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradhesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), Nepal and Vietnam.

Remarks : Hume (1888, P.56) reported that Godwin-Austen obtained this bird from the Hengdon peak of the Khasi Hills.

209. ***Picoides cathpharius pyrrhothorax*** (Hume)

1881. *Picus pyrrhothorax* Hume, *Str. Feath.*, 10 : 150 (Aimole, eastern Manipur Hills.)

1970. *Picoides cathpharius pyrrhothorax,* Ali and Ripley, vol. 4: 221.

Common name : Manipur Crimsonbreasted Pied Woodpecker (English).

Material examined : Nil.

Diagnostic characters : Back and tail black. Foreneck and occipital crest crimson in male, black in female. Sides of neck crimson in male, whitish in female. Underparts fulvous streaked with black.

Distribution : India: Meghalaya : Assam, Manipur, Mizoram and Nagaland.

Remarks : Ripley (1982, p. 237) reported it from Meghalaya.

210. ***Picoides atratus*** (Blyth)

1849. *Picus atratus* Blyth, *J. Asiat. Soc. Beng.*, 18(2): 803 (Tenasserim, Burma = Myanmar).

1970. *Picoides atratus,* Ali and Ripley, vol. 4 : 223.

Common name : Stripebreasted Pied Woodpecker (English).

Material examined : Nil.

Diagnostic characters : Back white barred black. Crown and crest bright crimson in male, black in female. Underparts excepting chin, boldly striated with black.

Distribution : India ; Meghalaya : Mizoram and Nagaland. Elsewhere ; Bangladesh, Burma (Myanmar), Loas and Thailand.

Remarks : Ripley (1982, p. 238) recorded it from Meghalaya.

211. ***Picoides macei macei*** (Vieillot)

1818. *Picus Macei* Vieillot, *Nouv. Dict. D'Hist. Nat.,*. 26 : 80. (Bengal).

1970. *Picoides macei macei,* Ali and Ripley, vol. 4 : 224.

Common name : Indian Fulvousbreasted Pied Woodpecker (English).

Material examined : West Garo Hills district : 1 ♀, Baghmara, *c.* 100 km of East of Tura, coll. N. Majumdar, 24.xi. 1988.

Diagnostic characters : In male, back and wing black barred with white. Crown with crest, crimson. A black moustachial streak extends behind ear-coverts. Chin, throat, sides of head and foreneck uniform pale rufous-brown. Breast and belly fulvous, faintly black-streaked. In female, characters similar to male, except crown and crest black.

Measurements : 1 ♀ ; Wing 102, tail 54, bill 24 from feathers.

Distribution : India : Meghalaya (Khasi Hills districts and South Garo Hills districts) : Andhra Pradesh, Arunachal Pradesh, Assam, Himachal Pradesh, Manipur, Mizoram, Nagaland, Orissa, Sikkim, Uttar pradesh and West Bengal. Elsewheere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Pakistan.

Remarks : Hume (1888, P. 57) reportd this bird from Shillong, the East Khasi Hills. Godwin-Austen (1870, p.97) also reported it from the Khasi Hills.

212. ***Picoides mahrattensis mahrattensis*** (Latham)

1801 *Picus Mahrattensis* Latham, *Index Orn.* Supple, xxxi (India = Mahratta country ex. Gen. Syn. suppl. 2 : 142, No.7).

1970. *Picoides mahrattensis mahrattensis,* Ali and Ripley, vol. 4: 226.

Common name : Yellowfronted Pied or Mahratta Woodpecker (English) and Katphora (Hindi).

Material examined : Nil.

Diagnostic characters : Size smaller than the Bulbul. In male, back, wings and tail brownish black, irregularly spotted with white. Forehead and crown brownish yellow. Occipital crest scarlet; chin, throat and foreneck white. Breast fulvous streaked with brown and abdomen with a prominent bright scarlet patch. In female, characters similar to male, extending entire crown golden brown without any scarlet in it.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the Indian Union except Andaman & Nicobar Islands. Arunachal Pradesh, Lakshadweep, Manipur, Mizoram, Nagaland, Tripura and West bengal. Elsewhere : Bangladesh, Pakistan, Nepal and Sri Lanka.

Remarks : Seen it at Baghmara, the West Garo Hills.

213. ***Picoides canicapillus semicoronatus*** (Malherbe)

1849. (1848-9). *Picus semicoronatus* Malherbe, *Bull. Soc. Nat. Moselle*, 5e cahier: 22 in text (Himalayas-Darjeeling=Darjiling, Darjilling district, West Bengal, India).

1970. *Picoides canicapillus semicoronatus* Ali and Ripley, vol. 4 : 229

Common name : East Himalayan Greycrowned Pygmy Woodpecker (English).

Material examined : Ri-Bhoi Hills district : 1 ♀, Barapani *c.* 14 km. N. of Shillong, coll. H.L. Hiteshi, 20.iii. 1949. West Garo Hills district : 1 ♀ Kherapara, coll. N. Majumdar, 22. xi. 1988.

Diagnostic characters : In male, upper back black; wings, lowerback and rump black broadly barred with white; forehead and crown ashy-grey. Occipital crest scarlet surrounded by black. Supercilium whitish; chin and throat whitish streaked with ashy. In female, hindcrown black.

Measurements : 2 ♀ : Wing 82, 92; tail 44, 45; bill [from the skull] 17, 20.

Distribution : India : Meghalaya (Khasi Hills, Ri-Bhoi Hills and West Garo Hills districts) : Assam, Nagaland, Sikkim and West Bengal. Elsewhere Nepal and Bhutan.

Remarks : Hume (1988, p. 59) remarked "occurs in the Khasi Hills and to be quite common about Shillong, it may occur in the Garo Hills." Koelz (1952) recorded it from Mawryngkneng, the Khasi Hills and described it as *Dendrocopos nanus gigantisculus.*

214. ***Picoides nanus nanus*** Vigors

1832. (1831-32) : *Picoides nanus* Vigors, *Proc. Comm. Zool. Soc. Lond.* (1) : 172 (Himalayas).

1970. *Picoides nanus nanus,* Ali and Ripley, vol. 4 : 231.

Common name : Northern Browncrowned Pygmy Woodpecker (English).

Material examined : Nil.

Diagnostic characters : In male, back barred with dark brown and white; crown umber brown with a narrow scarlet streak on both sides of the occiput. A broad white stripe from the eyes down sides of neck, underparts brownish white streaked with blackish. In female, the scarlet streaks lacking on the sides of hind crown.

Distribution : India : Meghalaya (Khasi Hills district) : Bihar, Gujarat, Haryana, Orissa, Rajasthan, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Nepal and Pakistan.

Remarks : Godwin-Austen (1870 p.97) recorded it from the Khasi Hills and listed it as *Yungipicus pygmoeus* Vigors.

Genus ***Hemicircus*** Swaison, 1837

215. ***Hemicircus canente canente*** (Lesson)

1830. *Picus canente* Lesson, *Cent. Zool.* : 215, pl. 73 (Pegu).

1970. *Hemicircus canente canente,* Ali and Ripley, vol. 4 : 236.

Common name : Heartspotted Woodpecker (English).

Material examined : Nil.

Diagnostic characters : In male, forehead, crown and crest black. Back black with a broad buff band on either sides over the wings marked with heart-shaped black spots. Rump buffy white. Foreneck, sides of neck, chin and throat buffy white. Breast and belly dusky olive and black. In female, only the forehead and crown buffy white.

Distribution : India : Meghalaya : Andhra Pradesh, Assam, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Orissa, Tamil Nadu and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), Malay Peninsula, Thailand and Indochinse countries.

Remarks : Ripley (1982, p.241) recorded it from Meghalaya.

Genus ***Blythipicus*** Bonaparte, 1854

216. ***Blythipicus pyrrhotis pyrrhotis*** (Hodgson)

1837. *Picus Pyrrhotis* Hodgson, *J. Asiat. Soc. Beng*, 6 : 108 (Nepal).

1970. *Blythipicus pyrrhotis pyrrhotis*, Ali and Ripley, vol. 4 : 238.

Common name : Redeared Baywoodpecker (English).

Material examined : Nil.

Diagnostic characters : In male, head and upper back rufous, lower back, wings and tail rufous barred with black. A prominent scarlet crossband on nape extending to sides of neck behind the earcoverts. Bill greenish yellow. In famels, the scarlet nape-band is absent.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Arunachal Pradesh, Assam, Manipur, Mizoram and Sikkim. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Koelz (1954) reported it from Nongpoh, the Ri-Bhoi Hills and described it as *Blythipicus pyrrhotis porphyreus.*

Genus ***Chrysocolaptes*** Blyth, 1843

217. ***Chrysocolaptes lucidus sultaneus*** (Hodgson)

1837. *Picus sultaneus* Hodgson, *J. Asiat. Soc. Beng.*, 6 : 105 (Nepal, restricted to Simra, Central Nepal, Ripley, 1950. *J. Bombay nat. Hist. Soc.*, 49 : 380).

1970. *Chrysocolaptes lucidus sultaneus,* Ali and Ripley, vol. 4 : 242.

Common name : West Himalayan Larger Goldenbacked Woodpecker (English).

Material examined : Nil.

Diagnostic characters : In male, back and mantle golden-olive. Crown, crest and rump crimson. Nape and hindneck white. Tail and upper tail-coverts black. Cheeks and chin white with two black lines on each cheek upto the throat. Breast very dark with scalypattern white spots on a black background. In female, similar to male excepting crown and crest black, stippled with white.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts): Himachal Pradesh. Elsewhere : Nepal.

Remarks : Hume (1888, p. 61) recorded it from the Garo and Khasi Hills.

218. ***Chrysocolaptes lucidus guttacristatus*** (Tickell)

1833. *Picus Guttacristatus* Tickell, *J. Asiat. Soc. Beng.*, 2 : 578 (Jungles of Borabhum = Barahabhum, Purulia dist., West Bengal and Dholbhum=Dhalbhum, Singhbhum Dist., Bihar, India).

1970. *Chrysocolaptes lucidus guttacristatus,* Ali and Ripley, vol. 4 : 243.

Common name : Eastern Larger Goldenbacked Woodpacker (English).

Material examined : East Garo Hills district : 1 ♂ Rangrenggiri, coll. H. Khajuria, 14.i. 1957; 1 ♀, Tasek, Songsak Reserve Forest, coll. R. K. Ghose, 4.vii. 1988; 1♂ and 1 ♀, Rongreggiri *c.* 4 km., E. of Williamnagar, coll. N. Majumdar, 191.xi. 1988 and 1.xii. 1988. Ri-Bhoi Hills district : 1 ♀, Burnihat *c.* 19km SE. of Gauhati, coll. R. V. Sherard, 24.v. 1949;

Diagnostic characters : Size equal to Pigeon. In male, back and mantle golden olive; crown, crest and rump crimson; nape and hindneck white. Tail and upper tail-coverts black. Cheeks and chin white, two black lines on each cheeks up to the throat, breast very dark with scaly pattern, white spots on a black background. In female, similar characters to male, excepting crown and black stippled with white.

Measurements :	Wing	Tail	Bill[from the skull]
2 ♂	165, 167	88, 91	51 (2)
2 ♀	169, 170	81, 83	48, 51

Distribution : India : Meghalaya (East Garo Hills district and Ri-Bhoi Hills district) : Andhra Pradesh, Arunachal Pradesh, Assam, Madhya Pradesh, Manipur, Mizoram, Nagaland, Orissa, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Thailand and Vietnam.

Order PASSERIFORMES

Family EURYLAIMIDAE

Key to the genera of the family Eurylaimidae

Tail much graduated; shorter than wing. Rictal bristles present.....***Serilophus***

Tail steepy graduated; longer than wing. Rictal bristles absent.....***Psarisomus***

Genus ***Serilophus*** Swainson, 1837

219. ***Serilophus lunatus rubropygius*** (Hodgson)

1839. *Raya Rubropygia* Hodgson, *J. Asiat. Soc. Beng.*, : 36 (No locality = Nepal).

1970. *Serilophus lunatus rubropygius,* Ali and Ripley, vol. 4 : 247.

Common name : Nepal Collared Broadbill (English).

Material examined : Nil.

Diagnostic characters : In male, crown and upper back ashy-grey. A short recumbent crest overhanging the nape. Lower back chestnut. Wings black with contrasting chestnut, blue and white markings. Tail black and graduated. Outer rectrices white-tipped. Eye Surrounded by yellow skin. In famale, similar to male but with a demi-gorget of white-tipped feathers on either side of neck.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts): Arunachal Pradesh, Assam, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Hume (1888, p. 49) remarked "Not rare in Khasi and Garo Hills."

Genus ***Psarisomus*** Swainson, 1837

220. ***Psarisomus dalhousiae dalhousiae*** (Jameson)

1835. *Eurylaimus dalhousiae* Jameson, *Edinburgh New Philos. Jour.,* 18: 589 (Northern India, probably near Simla).

1970. *Psarisomus dalhousiae dalhousiae,* Ali and Ripley, vol. 4 : 248.

Common name : Longtailed Broadbill (English).

Material examined : Ri-Bhoi Hills district : 5 ♂ and 2 ♀, Nongpoh, coll. Z.S.I. Party, 11 and 15.V. 1949; 1,2, and 3.vi. 1949.

Diagnostic characters : Back and wings grass-green. Tail graduated, long bright blue above, black below. Crown black with an oblong yellow spot on either side. A bright blue patch in the centre of neck.

Measurements :	Wing	Tail	Bill
2 ♂	109, 112	115, 118	22, 23
2 ♀	98, 102,	117, 123	22(2)

Distribution : India : Meghalaya (Ri-Bhoi Hills district): Arunachal Pradesh, Assam, Manipur, Mizoram, Sikkim and Uttar Pradedsh. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Indochinese countries, Nepal and Thailand.

Family PITTIDAE

Genus ***Pitta*** Vieillot, 1816

221. ***Pitta nipalensis nipalensis*** (Hodgson)

1837. *Paludicola nipalensis* Hodgson, *J. Asiat. Soc. Beng.* 6 : 103 (Nepal).

1970. *Pitta nipalensis nipalensis,* Ali and Ripley, Vol. 4 : 250.

Common name : Bluenaped Pitta (English).

Material examined : Nil.

Diagnostic characters : In male, hindneck and nape bright blue. Back and wings greenish brown. Underparts fulvous. Tail brown tinged with green. In female, similar to male but hindcrown rufous-fulvous and hindneck green. Throat whitish.

Distribution : India : Meghalaya (East Garo Hills district): Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Vietnam.

Remarks : Seen it at Rongrenggiri, the East Garo Hills.

222. ***Pitta sordida culcullata*** Hartlaub

1834. *Pitta culcullata* Hartlaub, *Rev. Zool.* : 65 (Malacca).

1970. *Pitta sordida culcullata,* Ali and Ripley, vol. 4 : 254.

Common name : Greenbreasted Pitta (English).

Material examined : Nil.

Diagnostic characters : Crown and nape rich rufous-brown. Lores, cheeks, ear-coverts, chin, throat and collar black surrounding the head. Upper back and mantle dark glossy bluish green. Upper tail-coverts and a patch on wing-shoulder bright ultramarine blue. Breast and sides of body pale greenish blue. Abdomen, vent and under tail-coverts bright crimson.

Distribution : India : Meghalaya (Khasi Hills district): Arunachal Pradesh, Assam, Bihar, Manipur, Mizoram, Nagaland, Sikkim. Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Indochinese countries and Malay Peninsula.

Remarks : Godwin-Austen (1907 p. 963) recorded from the Khasi Hills.

Family ALAUDIDAE

Key to the genera of the family Alaudidae

1st primary reaching to the tip of wing; wing of nine primaries;

hind claw straight..... ***Calandrella***

1st primary is very small, not reaching to the tip of wing. Wing of 10 primaries;

hind claw curved..... ***Eremopterix***

Genus ***Eremopterix*** Kaup, 1836

223. ***Eremopterix grisea*** (Scopoli)

1786. *Alauda grisea* Scopoli, *Del. Floor. et Faun. Insubrs.*, 2 : 95. (Gingee, S. Arcot district, Madras=Tamil Nadu, India).

1972. *Eremopterix grisea,* Ali and Ripley, vol. 5 : 9.

Common name : Ashycrowned Finch-Lark (English) and Dabak chiri (Hindi).

Material examined : Nil.

Diagnostic characters : In male, back sandy brown. Crown and forehead ashy-brown. Cheeks whitish and black streak from chin to eye. Underparts brownish black which is ashy-brown in female.

Distribution : India : Meghalaya (West Garo Hills district) : Throughout the Indian Union except the Andaman & Nicobar Is., Arunachal Pradesh, Manipur, Mizoram, Nagaland, Rajasthan, West Bengal and Tripura. Elsewhere : Bangladesh, Pakistan Nepal and Sri lanka.

Remarks : Observed this bird near Barangapara, the West Garo Hills.

Genus ***Calandrella*** Kaup, 1829

224. ***Calandrella cinerea dukhunensis*** (Sykes)

1832. *Alauda dukhunensis* Sykes, *Proc. Zool Soc. Lond.* : 93 (Dukhun = Deccan, India).

1972. *Calandrella cinerea dukhunensis,* Ali and Ripley, vol. 5 : 21.

Common name : Rufous Short-toed Lark (English) and Pullak (Hindi).

Material examined : Nil.

Diagnostic characters : Back sandy or greyish brown streaked with blackish. Throat, breast and belly less white more buff. Inner secondaries reaching the tip of wings.

Diagnostic characters : India : Meghalaya (East Khasi Hills district) : Through out the Indian mainland except Himachal Pradesh. Jammu & Kashmir, Gujarat, Haryana, Punjab and Rajsthan.

Remarks : Hume (1888, p. 288) reported it from Shillong, the East Khasi Hills.

Family HIRUNDINIDAE

Genus ***Hirundo*** Linnaeus, 1758.

225. ***Hirundo rustica rustica*** Linnaeus

1758. *Hirundo rustica* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 191 (Sweeden).

1972. *Hirundo rustica rustica,* Ali and Ripley, vol. 5 : 57.

Common name : Western Swallow (English), Ababil (Hindi) and Dopretchi, Dopatchi (Garo).

Material examined : Nil.

Diagnostic characters : Back glossy steel blue; forehead, chin and throat chestnut. Throat with a blue-black pectoral or breast band. Tail deeply forked.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the Indian mainlands. Elsewhere : Afghanistan, Arabia, Asia minor, Europe, Iran, Nepal, Pakistan, Russian Turkestan and Sri Lanka.

Remarks : Observed this bird near Kherapara, the West Garo Hills.

226. ***Hirundo rustica tytleri*** Jerdon

1864. *Hirundo Tytleri* Jerdon, *Bds. India* (3) ; 870 (Dacca=Dhaka, Bangladesh).

1972. *Hirundo rustica tytleri,* Ali and Ripley, vol. 5 : 60.

Common name Chestnutbellied Swallow (English). and Ababil (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to preceding bird. Back glossy blue black; incomplete blue-black pectoral band. Chin, throat and abdomen deep chestnut. Tail long forked and with spot.

Distribution : India : Meghalaya (South Garo Hills district): Arunachal Pradesh, Assam, Manipur, Nagaland, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan and Burma (Myanmar). Breeds in extreme NE. Asia and Kamchatka.

Remarks : Seen it near Siju Cave, the South Garo Hills.

Genus ***Delichon*** Horsfield & Moore, 1854

227. ***Delichon nipalensis nipalensis*** Moore

1854. *Delichon nipalensis* 'Hodgson'= Moore in Horsfield & Moore, *Cat. Bds. Mus.* E.I. Co. 1 : 384 (Nepal).

1972. *Delichon nipalensis nipalensis,* Ali and Ripley, vol. 5 : 76.

Common name : Nepal House Martin (English).

Material examined : Nil.

Diagnostic characters : Back, wings and tail steely blue-black. Rump glistening white. Hindneck with a broken white collar. Chin and throat dull black. Under tail-coverts glossy black. Breast and abdomen purewhite.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and Uttar Pradesh. Elsewhere : Bhutan, Burma(Myanmar) Nepal and Vietnam.

Remarks : Ripley (1982, p. 262) included it in Meghalaya.

Family LANIIDAE

Genus ***Lanius*** Linnaeus, 1758.

228. ***Lanius tephronotus tephronotus*** (Vigors)

1831. *Collurio tephronotus* Vigors, *Proc. Zool. Soc. Lond.*, 43 (Himalayas, restricted to Gyantse, Tibet, by Baker, 1924 *Faun. Br. India* 2 : 297 : re-restricted to Foothills of the Himalayas near Darjeeling=Darjiling, Darjiling dist., West Bengal, India, where breeding birds of the Gyantse dist. may be expected to winter 'by Mayr. 1947. *J. Bombay nat. Hist. Soc.*, 47 ; 127):

1972. *Lanius tephronotus tephonotus,* Ali and Ripley, vol. 5 : 92.

Common name : Eastern Tibet Greybacked Shrike (English).

Material examined : East Garo Hills district : 1 ♂ Rongdong forest, coll. G. M. Yazdani, 22.ii. 1971; 1 ♂ and 1 ♀, Rongrenggiri, coll. N. Majumdar, 1 and 2.xii. 1988; 1 ♀, Tasek, coll. A. K. Mandal, 8. xii. 1988.

Diagnostic characters : Back slaty; a broad blackbased through eyes to ear-coverts. Wings black. Rump and upper tail-coverts rufous; tail chestnut-brown, chin, throat and breast rufous; abdomen paler.

Measurements :	Wing	Tail	Bill
2 ♂	100(2)	107, 108	21, 22
2 ♀	95, 100	94, 100	21, 22

Distribution : India : Meghalaya (East Garo Hills and Khasi Hills districts) : Arunachal Pradesh, Assam, Bihar, Madhya Pradesh, Manipur, Uttar Pradeesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma(Myanmar), China, Indochinese countries and Thailand.

Breeds also in eastern Tibet, north to Sikang, south to N. Yunnan east to W. Szechuan.

Remarks : Hume (1888, p. 88) reported it from the Garo and Khasi Hills.

229. ***Lanius schach tricolor*** (Hodgson)

1837. *(Colluris) Tricolor* Hodgson, *Ind. Rev.*, 1 (10) : 446 (Nepal, restricted to Kathmandu, Nepal Valley, by Biswas, 1950, *loc. cit.*, below : 451).

1972. *Lanius schach tricolor*, Ali and Ripley, vol. 5 : 96.

Common name : Blackheaded Shrike (English).

Material examined : Nil.

Diagnostic characters : Upper back ashy-grey, lower back light chestnut. Head, tail and wings black. A small white patch on wing. Crown, sides of head, nape and hindneck black.

Distribution : India : Meghalaya (East Khasi Hills and Garo Hills districts) : Assam, Bihar, Manipur, Nagaland, Orissa, Punjab, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Nepal, Thailand and Vietnam.

Remarks : Godwin-Austen (1872, p. 142) recorded it from the Garo Hills. Hume (1888, p. 89)recorded it from Shillong, the East Khasi Hills.

230. ***Lanius cristatus cristatus*** Linnaeus

1758. *Lanius cristatus* Linnaeus, *Syst. Nat.*, 10 ed., 1 : 93 (Benghala = Bengal, India).

1972. *Lanius cristatus cristatus*, Ali and Ripley, vol. 5 : 98.

Common name : Brown Shrike (English) and Kerkheta (Hindi).

Material examined : East Garo Hills district : 1 ♀, Tasek, coll. A. K. Mandal, 8.xii. 1988. East Khasi Hills district : 2 ♂ Risa colony, Shillong, coll. E. D. Albinus, 3.x. 1979 and 20.i. 1980.

Diagnostic characters : Size equal to Bulbul. Crown, upper back, rump and upper tail-coverts reddish brown. White forehead and supercilium; a black line through eyes to ear-coverts. Wings brownish black. Tail rufous-brown. Chin, cheeks and throat white.

Measurements :	Wing	Tail	Bill
2 ♂	86, 98	86, 88	19(2)
1 ♀	100	98	20

Distribution : India : Meghalaya (East Garo Hills district and East Khasi Hills district) : Throughout the Indian mainland except Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab and Rajasthan. Elsewhere : Bangladesh, Bhutan, Maldive, Nepal, and Sri Lanka.

Remarks : Hume (1888, p. 92) recorded it from the Garo and Khasi Hills.

Family ORIOLIDAE

Genus ***Oriolus*** Linnaeus, 1766

231. ***Oriolus xanthornus xanthornus*** (Linnaeus)

1758. *Coracias xanthornus* Linnaeus. *Syst. Nat.*, ed. 10, 1: 108 (In America = Chandernagar, Hugli district, West Bengal, India).

1972. *Orilus xanthornus xanthornus* Ali and Ripley, vol. 5 : 108.

Common name : North Indian Blackheaded Oriole (English), Zardak (Hindi) and Dochirong (Garo).

Material examined : East Garo Hills district : 1 ♀, Rogrenggiri, c 4 km. E. of Williamnagar, coll. N. Majumdar, 1.xii. 1988; 1 ♂ Remgiri,coll. S Biswas 5.xi. 1973; 1 ♀ Charikeoti, coll. S. Biswas, 4. xi. 1973. West Garo Hills district : 1 ♂ Kherapara, coll. N. Majumdar, 20.xi.1988 Ri-Bhoi Hills district : 1 ♂ Nongpoh Reserve Forest, coll. R. K. Ghose, 25. viii. 1972.

Diagnostic characters : In male, entire body brilliant golden yellow excepting head, throat and upper breast jet black and some black in wings and tail. In female, only underparts tinged with olive.

Measurements :	Wing	Tail	Bill
2♂	137, 139	89, 90	31 (2)
2♀	131, 135	86, 89	30 (2)

Distribution : India : Maghalaya (East Garo Hills, West Garo Hills, Khasi Hills and Ri-Bhoi Hills districts) : Arunchal Pradesh, Assam, Bihar, Delhi, Himachal Pradesh, Madhya Pradesh (northern Part), Manipur, Mizoram, Nagaland, Sikkim, Uttar Pradesh, Tripura and West Bengal : Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Thailand.

Remarks : Godwin-Austen (1870, p. 106) recorded it from the Khasi Hills and listed it as *Oriolus melanocephalus* Linnaeus.

232. ***Oriolus traillii traillii*** (Vigors)

1832. *Pastor Traillii* Vigors, *Proc. Zool. Soc. Lond.*, pt. 1 : 175. (Himalayas-Darjeeling vide Baker, 1921. *J., Bombay., nat. Hist. Soc.*, 27 : 698).

1972. *Oriolus traillii trailli*, Ali and Ripley, vol. 5 : 112.

Common name : Indian Maroon Oriole (English).

Material examined : East Khasi Hills district : 1 ♀ Nongpriang, Cherrapunji, coll. T. D. Soota, 12.ii. 1974.

Diagnostic characters : In male, entire head and wings black. Back, breast and belly glossy crimson-maroon. Tail chestnut-maroon In female, similar to male, only underparts greyish white streaked with blackish.

Measurements : 1 ♀ : Wing 140, tail 103, bill 31.

Distribution : India : Meghalaya (East Khasi Hills district) : Aruncahal Pradesh, Assam, Himachal Pradesh, Manipur, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Indochinese countries, Nepal and Thailand.

Remarks : Godwin-Austen (1870, p. 106) recorded it from the Khasi Hills. Hume (1888, p. 188) reported it from Shillong peak.

Family DICRURIDAE

Genus ***Dicrurus*** Vieillot, 1816

233. ***Dicrurus adsimilis albirictus*** (Hodgson)

1836. *(Bhuchanga) Albirictus* Hodgson, *Ind., Rev.*, 1(8) : 326. (Nepal).

1972. *Dicrurus adsimilis albirictus*, Ali and Ripley, vol. 5 : 114.

Common name : North Indian Black Drongo (English) and Bujanga (Hindi).

Material examinmed : East Garo Hills district : 1 ♂, Damra, coll. S. Biswas, 22.xi. 1973.

Diagnostic characters : Entire body, the head and tail glossy jet black. Tail long deeply forked. White rictal spot present.

Measurements :	Wing	Tail		Bill
		Inner	*Outer*	
1♂	159	115	182	29

Distribution : India : Meghalaya (East Garo Hills district) : Assam, Bihar, Chadigarh, Delhi, Haryana, Himachal Pradesh, Jammu & Kashmir, Manipur, Mizoram, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh and West Bengal, Elsewhere : Afghanistan, Bangladesh, Bhutan, Burma (Myanmar), Iran (South eastern part), Nepal and Pakistan.

234. ***Dicrurus leucophaeus longicaudatus*** Hay

1845. *(Dicrurus) longicaudatus* Lord Arthur Hay, in Jerdon, *Madras J. Lit. Sci.*, 13 : 121 *nom. nud.*

1854. *Dicrurus longicaudatus* A. Hay, in Horsfield & Moore, *Cat. Bds. Mus.*, E.I. Co. 1 : 152 (Segour Pass, Neilgherries).

1972. *Dicrurus leucophaeus longicaudatus,* Ali and Ripley, vol. 5: 119.

Common name : Indian Grey Drongo (English).

Material examined : Nil.

Diagnostic characters : Size larger than the Bulbul. Head, back, wings and tail glossy slate black; tail long, deeply forked. Eyes conspicuous, crimson. Throat, breast and belly duller unglossed grey.

Distribution : India : Meghalaya (Khasi Hills district) : Throughout India except Arunchal Pradesh, Assam, arid portion of Kutch and Saurashtra of Gujarat, Mizoram, Nagaland, Tripura and arid zone of Rajasthan, Elsewhere : Bhutan, eastern Afghanistan south of the Hindukush, Nepal, Pakistan and Sri Lanka.

Remarks : Godwin-Austen (1870, p. 100) recorded it from the Khasi Hills and listed it as *Buchanga longicaudata* Hay.

235. *Dicrurus leucophaeus hopwoodi* Baker

1918. *Dicrurus leucophaeus hopwoodi* Baker, *Novit. Zool* 25 : 294 (Dacca = Dhaka, Bangladesh).

1972. *Dicrurus leucophaeus hopwoodi*, Ali and Ripley, vol. 5 : 121.

Common name : Assam Grey Drongo (English).

Material examined : East Khasi Hills district : 1♀, Motinagar Forest, coll. E. D. Albinus, 19.ix. 1972. Ri-Bhoi Hills district : 1♂, Barapani, c. 9 km N. of Shillong, coll. H. L. Hitashi, 20. v. 1949; 1 ♀(juvenile) and 1 ♀, Nongpoh, coll. Z.S.I. party, 1 and 9.vi. 1949;

Diagnostic characters : Head, back, wings and tail glossy slate black. Tail short and deeply forked. Eyes consipcuous, crimson. Throat, breast and belly duller unglossed grey.

Measurements :	Wing	Tail		Bill
1♂	137	Inner	Outer	27
		95	148	
2♀	139,142	98(2)	145, 150	26, 27

Distribution : India : Meghalaya (East Khasi Hills and Ri-Bhoi Hills districts) : Arunchal Pradesh, Assam, Nagaland and West Bangal.Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), and Indochinese countries.

236. *Dicrurus caerulescens caerulescens* (Linnaeus)

1758. *Lanius caerulescens* Linnaeus, *Syst. Nat.*, 10 ed. 1 : 95 (Benghala = Bengal).

1972. *Dicrurus caerulescens caerulescens,* Ali and Ripley, vol. 5: 122.

Common name : Indian Whitebellied Drongo (English) and Dhapri (Hindi).

Material examined : East Garo Hills district : 1 ♂ Williamnagar, coll. A. K. Mondal, 2.xii. 1988.

Diagnostic characters : Size smaller than the preceding bird. Head, back, tail and wings glossy indigo; throat, breast and belly brownish grey. Under tail-coverts white. Tail long and deeply forked.

Measurements : 1 ♂ : Wing 180, tail 150, bill 32.

Distribution : India : Meghalaya (East Garo Hills district) : Throughout the Indian Union except Andaman & Nocobar Islands, Haryana, Jammu & Kashmir, Lakshadweep and Rajasthan.

237. *Dicrurus annectans* (Hodgson)

1836. *(Bhuchanga) Annectans* Hodgson, *Ind. Rev.*, 1(8) : 326 (Nepal).

1972. *Dicrurus annectans,* Ali and Ripley, vol. 5 : 125.

Common name : Crowbilled Drongo (English).

Material examined : Nil.

Diagnostic characters : Size larger than the preceding bird. Entire plumage, glossed with steel blue; under wing-coverts dark black with a round and white spot at tip of each feather. Tail less deeply forked and short; outer restrices curving outward. Bill black, large and heavy.

Distribution : India : Meghalaya (West Garo Hills district): Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Indonesian Islands, Malay Peninsula, Nepal and Thailand.

Remarks : Observed it near Baghmara, the South Garo Hills.

238. ***Dicrurus aeneus aeneus*** Vieillot

1817. *Dicrurus aeneus* Vieillot, *Nouv. Diet. d'Hist. Nat.*, 9 : 585 (Bengal, restricted to Dacca = Dhaka by Baker, 1924, *Faun. Br. India, Birds* 2 : 368).

1972. *Dicrurus aeneus aeneus,* Ali and Ripley, vol. 5 : 126.

Common name : Bronzed Drongo (English).

Material examined : East Garo Hills district : 1 ♂ Rongrenggiri, c. 4 km, East of Williamnagar, coll. N. Majumdar, 29.xi. 1988. South Garo Hills district : 1 ♂ Baghmara, c. 100 km. S. of West Tura, coll. N. Majumdar, 24.xi. 1988.

Diagnostic characters : Size smaller than the preceding bird. Entire plumage highly glossy black with bronze-green and blue. Bill broad and depressed, width greater than depth at nostrils. Rump and under tail-coverts grey. Tail less deeply forked.

Measurements : 2 ♂ : Win	Tail		Bill
	Central	*Outer*	
142, 147	97, 100	154, 156	28(2)

Distribution : India : Meghalaya (East and South Garo Hills and Khasi Hills districts): Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Daman & Diu, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Orissa, Sikkim, Tamil Nadu, Tripura, Uttar pradesh and West Bengal. elsewhere : Bangladesh, Bhutan Burma (Myanmar), Indochinese countries, Malayasia, Nepal, Thailand and Yunnan.

Remarks : Hume (1888, p. 100) recorded it "from the Garo Hills, the Khasi Hills and Shillong itself" and listed it as *Chaptia aenea* Vieillot.

239. ***Dicrurus remifer tectirostris*** (Hodgson)

1836. *(Bhringa) Tectirostris* Hodgson, *Ind. Rev.*, 1 (8) : 325 (Nepal).

1972. *Dicrurus remifer tectirostris,* Ali and Ripley, vol. 5 : 128.

Common name : Lesser Racket-tailed Drongo (English).

Material examined : East Garo Hills district : 1 ♀, Rongrenggiri, coll. A. N. Fernandez, 7.ii. 1957.

Diagnostic characters : Size larger than the Myna. Entire plumage glossy metallic black; a velvety tuft of feathers above the base of bill. Two elongated "Wires" like outer tail-feathers ending in spatulae as "rackets" fully webbed on both sides of shaft.

Measurements : 1 ♀ : Wing 132; tail (inner) 122, tail (outer) 378; bill 26.

Distribution : India : Meghalaya (East Garo Hills district) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Indochinese countries, Nepal and Thailand.

Remarks : Godwin-Austen (1870, p.268) recorded it from the Garo Hills.

240. ***Dicrurus hottentottus hottentottus*** (Linnaeus)

1766. *Corvus hottentottus* Linnaeus, *Syst. Nat.*, ed. 12, 1 : 155 (Cape of Good Hope, restricted to Sikkim, India, by Baker, 1919, re-restricted to 'region between Ayuthia and head of the Gulf' Siam by Kloss, 1921, *J. Fed Malay States Mus.*, 10 : 223. Re-restricted to Chandernagor, Higli district, West Bengal, India by Streusemann, 1, 52, *Ibis* 94 : 517, 521).

1972. *Discrurus hottentottus hottentottus*, Ali and Ripley, vol. 5: 131.

Common name : Haircrested Drongo (English), Kesraj (Hindi) and Doba (Garo).

Material examined : East Garo Hills district : 2 ♂ and 1 ♀, Rongrenggiri, East of Williamnagar, coll. N. Majumdar, 27.xi. 1988 and 1.xii. 1988. Ri-Bhoi Hills district : 1 ♂ and 1 ♀, Byrnihat, coll. Z.S.I. tour party, 20.v. 1949 and 18.vi. 1949; 2 ♂ Nongpoh, Z.S.I. tour party, 11 and 13.v. 1949.

Diagnostic characters : Size equal to Myna. Entire plumage irridescent glossed and spangled blue black. A few fine hair like feathers springing from forehead and extending over hindcrown and upper back. Bill long, pointed and downcurved. Tail long, square, curled up at the outer ends.

Measurements :	Wing	Tail		Bill
2 ♂	168, 173	(Central)	(Outer)	42, 44
		128, 129	142, 155	
1 ♀	160	135	141	43

Distribution : India : Meghalaya (East Garo Hills, Khasi Hills and Ri-Bhoi Hills districts) : Throughout the Indian mainland except Himachal Pradesh, Jammu & Kashmir, Mizoram and Rajasthan. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Hume (1888, p. 102) reported it from the Garo and Khasi Hills and listed it as *Chibia hottentotta* Linnaeus.

241. ***Dicrurus paradiseus grandis*** (Gould)

1836. *Edolius grandis* Gould, *Proc. Zool. Soc. Lond.* : 5 (Nepalia).

1972. *Dicrurus paradiseus grandis*, Ali and Ripley, vol. 5 : 136.

Common name : Northern Large Racket-tailed Drongo (English) and Bhringraj (Hindi).

Material examined : East Garo Hills district : 1 ♀, Rongrenggiri, coll. A. N. Fernandez, 7.ii. 1957; 1 ♀, coll. N. Majumdar, 2. xii. 1988.

Diagnostic characters : Size qeual to preceding bird. Entire plumage metallic black; a conspicuous backward curving very large tuft or crest feathers on forehead, curving back over the entire crown. Tail with two long "wires" like spatula tipped streamers.

Measurements : 1 ♀ : Wing 169; tail (central) 175, tail (outer) 327; bill 40.

Distribution : India : Meghalaya (East Garo Hills and Khasi Hills districts) : Throughout the Indian mainland except Haryana, Goa, Jammu & Kashmir, Karnataka, Kerala, Maharashtra, Punjab and Rajasthan. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal, Vietnam and Yunnan.

Remarks : Hume (1888, p. 101) reported it from the Khasi Hills.

Family ARTAMIDAE

Genus ***Artamus*** Vieillot, 1816

242. ***Artamus fuscus*** Vieillot

1917. *Artamus fuscus* Vieillot, *Nouv. Dit. d'Hist. Nat.*, 17:297 (Bengal)

1972. *Artamus fuscus,* Ali and Ripley, vol. 5 : 143.

Common name : Ashy Swallow-shrike (English) and Tadi ababeel (Hindi).

Material examined : East Garo Hills district : 1 ♂ Damra, coll. R. V. Sherard, 24.vi. 1949; 1 ♂ Sarengma c. 10 km. N. of Dudnai, coll. Z.S.I. Party, 4.vii. 1949. Ri-Bhoi Hills district, 2 ♂ and 1 ♀, Nongpoh, coll. R. V. sherard, 13.v. 1949 and 16.vi. 1949.

Diagnostic characters : Size equal to Bulbul. Entire head and back dark slaty grey; rump paler than back, slaty grey brown. Underparts paler. Tail short slaty black, tipped with white. Bill bluish and heavy, undertail-coverts white.

Measurements :	Wing	Tail	Bill
2 ♂	134, 140	58, 60	22(2)
1 ♀	131	54	22

Distribution : India : Meghalaya (East Garo Hills, East Khasi Hills and Ri-Bhoi Hills districts): Throughout the Indian mainland except Jammu & Kashmir. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Indochinese countries, Nepal and Sri Lanka.

Remarks : Hume (1888, p. 103) reported it from Shillong, the East Khasi Hills.

Family STURNIDAE

Key to the genera of the family sturnidae

1. Wing with distinct white wing patch.....3

   Wing without wing patch 2

2. Underparts mostly greyish white or rufous .....***Sturnus***

Underparts in male black with green reflection, in female striped ..... ***Aplonis***

3. White patch near base of remiges..... 4

Patch at about middle of length of wing..... ***Gracula***

4. Throat mostly dark grey..... ***Acridotheres***

Throat chestnut..... ***Saroglossa***

Genus ***Saroglossa*** Hodgson

243. ***Saroglossa spiloptera*** (Vigors)

1831. *Lamprotornis spilopterus* Vigors, *Proc. Zool. Soc. Lond.:* 35(Himalayan Mountains, restricted to Simla-Almora dist., India)

1972. *Saroglossa spiloptera,* Ali and Ripley, vol. 5 : 147.

Common name Spottedwinged Stare (English).

Material examined : Nil.

Diagnostic characters : In male, crown, back and wings brownish grey scalloped with black. Chin and throat deep chestnut-rurous. Breast, belly and vent rusty white. A white wing-patch. In female, back sooty brown. Sides of head dark brown. Underparts pale fulvous ashy-brown scalloped with white.

Distribution : India : Meghalaya (Garo Hills district) : Assam, Himachal Pradesh, Manipur, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar) and Nepal.

Remarks : Hume (1888, p. 268) Stated that Godwin-Austen recorded it from the Garo Hills.

Genus ***Aplonis*** Gould, 1836

244. ***Aplonis panayensis affinis*** (Blyth)

1846. *Calornis affinis* 'A Hay'= Blyth, *J. Asiat. Soc. Beng.*, 15 : 36. (Tipperah).

1972. *Aplonis panayensis affinis,* Ali and Ripley, vol. 5 : 149.

Common name : Tipperah Glossy Stare (English).

Material examined : Nil.

Diagnostic characters : Entire head, body and tail brilliantly green-glossed. Eyes conspicuous scarlet-crimson. Lores and feathers at base of upper mandible dull black.

Distribution : India : Meghalaya (Khasi hills district) : Assam and Tamil Nadu (Straggler). Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Baker (1907, p.794) procured it in the Khasi Hills as *Calornis chalybeius.*

Genus ***Sturnus*** Linnaeus, 1758

245. ***Sturnus malabaricus malabaricus*** (Gmelin)

1789. *Turdus malabaricus* Gmelin, *Syst. Nat.*, I : 816 (Malabar, Kerala, India).

1972. *Sturnus malabaricus malabaricus,* Ali and Ripley, vol. 5 : 152.

Common name : Greyheaded Myna (English) and Pawei (Hindi).

Material examined : East Garo Hills district : 1 ♂, and 1 ♀, Rongrenggiri coll. N. Majumdar, 27.xi. 1988 and 1.xii. 1988. Ri-Bhoi Hills district : 1 ♂, Barapani, coll. Z.S.I. Party, 10.vi. 1969; 1 ♂ Byrnihat, coll. Z.S.I. Party, 23.v. 1969; 2 ♂ and 2 unsexed, Nongpoh, coll. R. V. Sherard, 8 and 15.v. 1949.

Diagnostic characters : Size smaller than the common Myna. Head and back brownish grey; forehead feathers over eyes whitish; cheeks and ear-coverts pale rufous grey. Chin, throat and breast pale rufous; belly and vent bright rufous; wings black and grey. Tail ferruginous.

Measurements	Wing	Tail	Bill
1 ♂	104	66	22
1 ♀	97	60	21

Distribution : India : Meghalaya (East Garo Hills and Ri-Bhoi Hills districts) : Throughout the Indian mainland except Jammu & Kashmir, Kerala, Manipur and Nagaland. Elsewhere : Nepal, Bhutan and Bangladesh.

246. ***Sturnus contra contra*** Linnaeus

1758. *Sturnus Contra* Linnaeus, *Syst. Nat.*, ed., 10, 1 : 167 (India, restricted to Chandernagore (Hooghly = Hugli, Hugli district, West Bengal) by Stresemann, 1952, Ibis 94: 517).

1972. *Sturnus contra contra,* Ali and Ripley, vol. 5 : 172.

Common name : Indian Pied Myna (English) and Ablaki myna (Hindi).

Material examined : Ri-Bhoi Hills district : 1 ♀, Byrnihat, coll. R. V. Sherard, 24.v. 1949.

Diagnostic characters : Size equal to preceding bird. Entire plumage black and white; orbital skin deep orange-red; bill basal portion bright orange red and terminal pale yellow. Legs and feet yellowish-brown and terminal pale yellow.

Measurements : 1 ♀ ; Wing 118, tail 68, bill 32.

Distribution : India : Meghalaya (Ri-Bhoi Hills district): Andhra pradesh, Assam, Bihar, Haryana, Madhya pradesh, Orissa, Punjab, Rajasthan and West Bengal. Elsewhere : Bangladewh and Nepal.

Genus ***Acridotheres*** Vieillot, 1816

247. ***Acridotheres tristis tristis*** (Linnaeus)

1766. *Paradisea tristis* Linnaeus, *Syst. Nat.*, ed. 12, 1 : 167. (Philippines, errore-Calcutta, Calcutta district, West Bengal, India, vide Baker, 1926, *Faun. Br. India,* 3 : 53= Pondicherry, India, *vide* stresemann, 1952, Ibis : 515).

1972. *Acridotheres tristis tristis,* Ali and Ripply, vol. 5 : 177.

Common name : Indian Myna (English), Desi Myna (Hindi) and Saruk (Garo).

Material examined : East Khasi Hill district : 2 ♀, Cherrapunji, coll. T. D. Soota, 9 13.11. 1974, Ri-Bhoi Hills district : 1 ♂ and 1 ♀, Nongpoh, coll. H. L. Hiteshi, 9. v. 1949 and 3.vi. 1949.

Diagnostic characters : Back and lower breast dark brown; head, neck and upper breast glossy black. Legs bright yellow. Bill and naked patch below and behind eye yellow. Wings with a large white patch. Tail brownish black with broad white-tips to the rectrices.

Measurements :	Wing	Tail	Bill
1 ♂	133	67	27
1♀	140	81	28

Distribution : India : Meghalaya (Garo Hills, Khasi Hills and Ri-Bhoi Hills districts) : Throughout the Indian Union; introduced in Andaman and Nicobar Islands. Elsewhere : Afghanistan, Bangladesh, Bhutan, Burma (Myanmar), Indochinese countries, Nepal, Pakistan, Sri Lanka and Thailand. Introduced in Australia, Hawai, Mauritius, New Zealand, Seychelles, South Africa and Russian Turkestan.

Remarks : Hume (1888, p. 262) recorded this bird from both the Garo and Khasi Hills.

248. ***Acridotheres fuscus fuscus*** (Wagler)

1827. *Pastor fuscus* Wagler, *Syst. Av., Pastor* sp. 6 (India = East Bengal, Bangladesh, Baker, 1921)

1972. *Acridotheres fuscus fuscus,* Ali and Ripley, vol. 5 : 183.

Common name : Northern Jungle Myna (English) and Pahari Myna (Hindi).

Material examined : Ri-Bhoi Hills district : 1 ♂, Byrnihat, coll. H. L. Hiteshi, 5.vi. 1949.

Diagnostic characters : Size equal to common Myna. Back, throat and breast grey-brown. Wing with large white wing-patch. Forehead with a prominent tuft of errect black feathers at base of bill. Tail broad, white-tipped. Bill yellow-orange. Legs and feet yellow-ochre.

Measurements : 1 ♂ : Wing 125, tail 73, bill 28.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Assam, Bihar, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Orissa, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Nepal and Pakistan.

Genus ***Gracula*** Linnaeus, 1758

249. ***Gracula religiosa intermedia*** A. Hay

1844. *Gracula intermedia* A. Hay, *Madras J. Lit. Sci.,* 13 : 157 (Cachar, cachar district, Assam, India).

1972. *Gracula religiosa intermedia,* Ali and Ripley, vol. 5 : 191.

Common name : Northern Hill Myna (English), Pahari Myna (Hindi) and Myna (Garo).

Material examined : East Garo Hills district : 1 unsexed, Rongrenggiri, coll. Z.S.I. Party, 9.ii. 1957; 1 ♀, Nofak *c.* 3 km. from Rongen, coll. S. Biswas, 12.iv. 1973; 1 ♂ Sarengma *c.* 9 km. N. of Dudnai, coll. A. K. Mukherjee, 25.i. 1955; 1 ♀, Tasek Sangsak Reserve forest, coll. R. K. Ghose, 3.vii. 1988. Ri-Bhoi Hills district: 1 ♂ Byrnihat, coll. Z.S.I Party, 20.v. 1949; 2 ♂ and 1 ♀, Nongpoh, coll. Z.S.I. party, 11. v. 1949 and 4.vi. 1949.

Diagnostic characters : Size slightly larger than the common Myna. Entire plumage jet black. Bright orange-yellow patches of naked skin and fleshy-wattles on sides of head and neck. Wing with a broad white patch on primaries.

Measurements :	Wing	Tail	Bill[from the skull]
1 ♂	163	74	33
2 ♀	168, 171	78, 85	33, 34

Distribution : India : (Meghalaya (East Garo Hills, Khasi Hills and Ri-Bhoi Hills districts) : Andhra pradesh, Arunachal Pradesh, Assam, Bihar, Madhya Pradesh, Manipur, Nagaland, Orissa, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Nepal, Bhutan, Burma (Myanmar) Indochinese countries and Thailand.

Remarks : Hume (1888, p. 268) collected this bird "from Shillong and other places in the Khasi Hills" and listed it as *Eulabes Javanensis* Osb.

Family CORVIDAE

Key to the genera of the family Corvidae

1. Plumage predominantly black or black with ashy nape ..... ***Corvus***

   Plumage with brilliant or contrasting colours 2

2. Two central rectrices elongated 3

   Two central rectrices not elongated ..... ***Garrulus***

3. Plumage with shades of blue ..... ***Cissa***

   Plumage with shades of brown ..... ***Dendrocitta***

Genus ***Garrulus*** Brisson, 1760

250. ***Garrulus glandarius bispecularis*** Vigors

1831. *Garrulus bispecularis* Vigors, *Proc. Zool. Soc. Lond.* : 7 (Himalayan Mountains = Murree, Baker, 1922, FBI, 1 : 63).

1972. *Garrulus glandarius bispecularis,* Ali and Ripley, vol. 5: 199.

Common name : West Himalayan Redcrowned Jay (English).

Material examined : Nil.

Diagonostic characters : Back, throat, breast and abdomen vinaceous fawn coloured. Wings black-barred bright blue. Rump and vent white. Tail velvety black. A broad velvety black moustachial band.

Distribution : India : Meghalaya (East Khasi Hills district) : Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab and Uttar Pradesh. Elsewhere : Nepal and Pakistan.

Remarks : Hume (1888, p. 257) collected it from Shillong, the East Khasi Hills and listed it as *Garrulus bispecularis* Vigors. According to Ali and Ripley (1972), *Garrulus glandarius bispecularis* extends from Pakistan to Nepal.

251. ***Garrulus glandarius interstinctus*** Hartert

1918. *Garrulus bispecularis interstinctus* Hartert, Novit. *Zool.*, 25: 430 (Darjeeling =Darjiling Darjiling. West Bengal, India.)

1972. *Garrulus glandarius interstinctus,* Ali and Ripley, vol. 5 : 201.

Common name : East Himalayan Redcrowned Jay (English).

Material examined : Nil.

Diagnostic characters : Head, upper back, throat, breast and abdomen vinanceous fawn coloured. Wings with closely black barred bright blue. Moustachial band and tail broad and velvety black. Rump and vent white.

Distribution : India : Meghalaya : Arunachal Pradesh, Asssam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Nepal and Tibet.

Remarks : Ripley (1982, p. 285) reported it from Meghalaya.

Genus ***Cissa*** Boie, 1826

252. ***Cissa chinensis chinensis*** Boddaert

1783. *Cissa Chinensis* Boddaert, *Table Pl. enlum :* 38 (China, corrected to Southern Thailand by Robinson & Kloss, 1923=Margui, Burma, *vide* Stresemann, 1952, *Ibis,* 94 : 516).

1972. *Cissa chinensis chinensis,* Ali and Ripley, vol. 5 : 204.

Common name : Green Magpie (English).

Material examined : Nil.

Diagnostic characters : Size equal to common Myna. Back and underparts bright-leaf green. Wings chinnamon-red. A broad black band running backard through eyes to meet on nape. Tail long, graduated, black-and-white-tipped. Bill and legs bright coral-red.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Bihar, Manipur, Mizoram, Nagaland, Sikkim, Uttar Pradesh, Tripura and West Bengal.

Remarks : Hume (1888, p. 258) remarked as "Godwin Austen seems to have obtained one at Cherrapunjee"

253. ***Cissa erythrorhyncha magnirostris*** (Blyth)

1846. *Ps. (ilohinus) magnirostris* Blyth, *J. Asiat. Soc. Beng.* 15 : 27-28 (Ya-ma-dong Mountains, separating Aracan = Asakan from Pegu, Burma = Myanmar).

1972. *Cissa erythrorhyncha magnirostris,* Ali and Ripley, vol. 5 : 212.

Common name : Burmese Redbilled Blue Magpie (English).

Material examined : Nil.

Diagnostic characters : Head, neck and breast velvety black. Nape with a large white patch. Abdomen and vent greyish white. Wings blue. Tail very long with white and black ring like markings.

Distribution : India : Meghalaya : Assam, Manipur and Nagaland. Elsewhere : Bangladesh and Burma.

Remarks : Ripley (1982, p. 287) recorded it from Meghalaya.

Genus ***Dendrocitta*** Gould, 1833

254. ***Dendrocitta vagabunda vagabunda*** (Latham)

1790. *Coracias vagabunda* Latham, *Index Orn.*, 1 : 171 (India, restricted to Calcutta by Ticehurst, 1922, *Ibis* : 537).

1972. *Dendrocitta vagabunda vagabunda,* Ali and Ripley, vol. 5: 218.

Common name : Northeastern Tree Pie (English) and Mahala. (Hindi).

Material examined : Garo Hills district : 1 ♂ Balfagram, coll. M. R. Rynth, 24.xi. 1986.

Diagnostic characters : Back and scapulars dark brownish fulvous. Rump, belly and under tail-coverts fulvous buff. Head, neck and breast dark sooty-grey. Tail long, graduated, greyish with broad black tips. Wings greyish white and black.

Measurements : 1 ♂, Wing 147, tail 225, bill 34.

Distribution : India : Meghalaya (Garo Hills district) : Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Madhya Pradesh, Maharashtra, Manipur, Orissa, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh and Nepal.

255. ***Dendrocitta frontalis frontalis*** Horsfield

1840. *Dendrocitta frontalis* Horsfield, *Proc. Zool. Soc. Lond.* : 163 (Assam).

1972. *Dendrocitta frontalis,* Ali and Ripley, vol. 5: 222.

Common name : Blackbrowed Tree Pie (English).

Material examined : Nil.

Diagnostic characters : Back, belly and undertail-coverts grey and chestnut. Nape, sides of head and breast white. Face, throat and foreneck black. Bill heavy, curved and black. Tail entirely black.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Nagaland and Sikkim. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Ripley (1982, p. 289) mentioned its existence in Meghalaya.

256. ***Dendrocitta formosae himalayana*** Jerdon

1864. *Dendrocitta himalayana* 'Blyth' *Jerdon., Bds. India 3 : 874.* (Sikkim, *India,* restricted by Ticehurst, 1925, *Bull. Br. Orn. Cl.,* 46 : 22).

1972. *Dendrocitta formosae himalayana,* Ali and Ripley, vol. 5 : 226.

Common name : East Himalayan Tree Pie (English).

Material examined : Jaintia Hills district : 1 ♂ Garampani, coll. E. D. Albinus, 17.ix. 1980. West Garo Hills district : 1 ♂ and 1 ♀, Kherapara, coll. R. K. Ghosh, 19. vii. 1988. West Khasi Hills district : 1 ♂ Sonapahar, coll. K. R. Rao, 29.xi. 1977.

Diagnostic characters : Black forehead; sides of head sooty brown; ashy grey crown, nape and upper mantle; lower mantle and scapulars buffy brown. Rump and upper tail-coverts paler. Black wings with a pure white patch. Chin and throat dark sooty brown, breast and belly rusty brown and whitish.

Measurements :	Wing	Tail	Bill
2 ♂	137, 139	194, 220	35, 36
1 ♀	158	198	35

Distribution : India : Meghalaya (Jaintia Hills district, West Garo Hills and West Khasi Hills districts) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Orissa, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh Bhutan, Burma (Myanmar), China, Hainan, Laos, Nepal, Taiwan and Vietnam.

Remarks : Hume (1888, p. 259) recorded it from the Khasi Hills.

Genus ***Corvus*** Linnaeus, 1758

257. ***Corvus splendens splendens*** Vieillot

1817. *Corvus splendens* Vieillot, *Nouv. Dic. d'Hist. Nat.*, 8: 44 (Bengal).

1972. *Corvus splendens splendens*, Ali and Ripley, vol, 5 ; 244.

Common name : Indian House Crow (English), Desi Kowwa (Hindi) and Doka (Garo).

Material examined : Nil.

Diagnostic characters : Glossy black forehead, crown and throat. Nape, neck, upper breast and upper back glossy black with dusky-grey. Bill thick and black. Eyes whitish.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the India except Jammu & Kashmir, Himachal Pradesh, Kerala, Lakshadweep and Punjab. Introduced in Andaman Islands. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Observed it near Kherapara, Tura and Barangapara, the West Garo Hills.

258. ***Corvus macrorhynchos levaillantii*** Lesson

1831. *Corvus levaillantii* Lesson, *Traite d Orn.* : 328 (Bengal).

1972. *Corvus macrorhynchos levaillantii*, Ali and Ripley, vol. 5 : 254.

Common name : Eastern Jungle Crow (English), Jangli Kowwa (Hindi) and Dogisik (Garo).

Material examined : Khasi Hills district : 1 ♂ Motinagar Forest, Shillong, coll. E. D. Albinus, 19.vii. 1972; 1 ♀, Upper Shillong, coll. E. D. Albinus, 31.v. 1972.

Diagnostic characters : Size larger than the House Crow. Entire plumage glistening jet-black. Base of nape feathers dusky-grey. Bill heavy, curved and black.

Measurements : 1 ♂ : Wing 308, tail 182, bill 68.

Distribution : India : Meghalaya (East Khasi Hills district) : Andaman Islands, Assam, Manipur, Nagaland, Tripura and West Bengal.

Family CAMPEPHAGIDAE

Key to the genera of the family Campephagidae

1. Tail square ..... ***Tephrodornis***
   Tail more of less graduated 2
2. Shafts of rump-feathers soft ..... ***Hemipus***
   Shafts of rump-feathers spiny 3
3. Outer rectrices more than half length of tail ..... ***Pericrocotus***
   Outer rectrices more than three quarters length of tail ..... ***Coracina***

Genus ***Hemipus*** Hodgson, 1844

259. ***Hemipus picatus picatus*** (Sykes)

1832. *Muscicapa picata* Sykes, *Proc. Comm. Sci. Corr. Zool. Soc. Lond.:* 85 (Dukhun = Deccan, India).

1971. *Hemipus picatus picatus,* Ali and Ripley, vol. 6: 3.

Common name : Blackbacked Pied Flycatcher-Shrike (English) and Chhota kala latora (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to Sparrow. In male, head and back glossy black; chin and throat pure white; breast and belly pinkish white. White collar round the hindneck; rump white. Wings and tail black-and-white. In female, the black colour replaced by sooty brown colour.

Distribution : India : Meghalaya (East Khasi Hills district) : Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, Tripura and West Bengal. Elsewhere : Bangladesh, Indochinese countries, Indonesia and Thailand.

Remarks : Hume (1888, p. 93) collected this bird "from Shillong and the Khasi Hills"

Genus ***Tephrodornis*** Swainson, 1832

260. ***Tephrodornis virgatus pelvica*** (Hodgson)

1837. *Tenthaca Pelvica* Hodgson, *Ind. Rev.*, 1 (10) : 447 (Nepal).

1971. *Tephrodornis gularis pelvica,* Ali and Ripley, vol. 6 : 6.

Common name : Nepal Wood Shrike (English).

Material examined : East Garo Hills district : 1 ♀, Rongrenggiri *c* 4 km. E. of Williamnagar, coll. N. Majumdar, 28.xi. 1988. Ri-Bhoi Hills district : 1 ♀, Nongpoh, coll. R. V. sherard, 9.v. 1949.

Diagnostic characters : In male, back, wings and tail ashy brown. Crown and nape ashy-grey. A broad black band from lores through eye to ear-coverts. Rump and upper tail-coverts whitish and ashy-brown. Chin, throat and breast pale, ashy fawn. Centre of abdomen whitish. In female, crown and back same colour, eye band brown.

Measurements : 1 ♀ ; Wing 118, tail 92, bill 28.

Distribution : India : Meghalaya (East Garo Hills district Khasi Hills district and Ri-Bhoi Hills districts) : Andhra Pradesh, Assam, Bihar, Manipur, Nagaland, Orissa, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Nepal and Bhutan.

Remarks : Hume (1888, p. 93) recorded it from the Khasi hills.

261. ***Tephrodornis pondicerianus pondicerianus*** (Gmelin)

1789. *Muscicapa pondicerianus* Gmelin, *Syst. Nat.*, 1 : 939 (Coromandel, Tamil Nadu, India).

1971. *Tephrodornis pondicerianus pondicerianus,* Ali and Ripley, vol. 6 : 11.

Common name : Indian Wood Shrike (English) and Keroula (Hindi).

Material examined : Nil.

Diagnostic characters : Back, wings and tail greyish brown, A dark brown stripe below the eye from lores to ear-coverts. Supercilium whitish. Rump feathers white at base and at tips. Outer rectrices white.

Distribution : India : Meghalaya (West Garo Hills district) : Throughout the Indian mainland except Himachal Pradesh. Jammu & Kashmir, Gujarat, Haryana, Punjab and Rajasthan. Elsewhere : Bangladesh.

Remarks : Observed it at Kherapara, the West Garo Hills.

Genus ***Coracina*** Vieillot, 1816

262. ***Coracina novaehollandiae macei*** (Lesson)

1830. *Graucalus macei* Lesson, *Traite d'Orn.* : 349 (Calcutta, Calcutta district, West Bengal, India).

1971. *Coracina novaehollandiae macei,* Ali and Ripley, vol. 6 : 14.

Common name : Indian Large Cuckoo-Shrike (English) and Kasya (Hindi).

Material examined : Nil.

Diagnostic characters : Size smaller than the Pigeon. In male, head and back grey. Underparts whitish. A broad dark eye-streak, wings and tail black. In female, eye-streak less prominent. Underparts barred with grey and white.

Distribution : India ; Meghalaya (East Khasi Hills district): Throughout the Indian mainland except Arunachal Pradesh, Assam, Haryana, Himachal Pradesh, Jammu & Kashmir, Manipur: Mizoram, Nagaland Punjab and Sikkim. Elsewhere : Bangladesh.

Remarks : Hume (1888, p. 94) reported this bird "from Shillong and the Khasi Hills" and listed it as *Graucalus macii* Lesson.

263. ***Coracina novaehollandiae nipalensis*** (Hodgson)

1836. *Graucalus Nipalensis* Hodgson, *Ind. Rev.*, 1(8): 327 (Nepal).

1971. *Coracina novaehollandiae nipalensis,* Ali and Riupley, vol. 6: 16.

Common name : Himalayan Large Cuckoo-Shrike (English).

Material examined : East Garo Hills district : 1 ♂ Williamnagar, coll. A. K. Mandal, 2.xii. 1988: 2♂ and 1♂, Rongrenggiri, *c.* 4 km. E. of Williamnagar, coll. N. Majumdar, 27, 28 and 30.xi. 1988.Ri-Bhoi Hills district : 1 ♀, G. Umran, G. S. Road, coll. E. D. Albinus 24.iv. 1985.

Diagnostic characters : In male, chin, throat and breast grey; belly without any barring. In female, chin throat and breast grey and belly barred.

Measurements :	Wing	Tail	Bill [from the skull]
2 ♂	184, 186	130, 138	31, 33
2♀	173, 178	133, 137	30(2)

Distribution : India : Meghalaya (East Garo Hills and Ri-Bhoi districts) : Assam, Bihar, Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Sikkim, Tripura, Uttar Pradesh and West Bengal.

264. ***Coracina melaschistos melaschistos*** (Hodgson)

1836. *Volvocivora Melaschistos* Hodgson, *Ind. Rev.*, 1(8) : 328 (Nepal).

1971. *Coracina melaschistos melaschistos*, Ali and Ripley, vol. 6: 19.

Common name : Smaller Grey Cuckoo-Shrike (English).

Material examined : Ri-Bhoi Hills district : 1 ♀, Barapani G. S. Road, coll. E. D. Albinus, 6.ix. 1979.

Diagnostic characters : Size between Bulbul and Myna. In male, head and back dark bluish grey; eye-stripe dark. Wings and tail black. Central rectrices narrowly and the lateral ones broadly tipped white. In female, similar but paler grey and with barred underparts. Terminal margin of the tail is white.

Measurements : 1 ♀ ; Wing 115, tail 107, bill 21.

Distribution : India : Meghalaya (Ri-Bhoi Hills district) : Andhra Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Karnataka, Madhya Pradesh, Nagaland, Orissa, Sikkim, Tripura, Uttar pradesh and West Bengal. Elsewhere : Pakistan, Nepal, Bhutan, Bangladesh, China, Taiwan and Indochinese countries.

Genus ***Pericrocotus*** Boie, 1826

265. ***Pericrocotus flammeus fraterculus*** Swinhoe

1870. *Pericrocotus fraterculus* Swinhoe, *Ibis* : 224 (Hainan)

1971. *Pericrocotus flammeus fraterculus*, Ali and Ripley, vol. 6 : 28.

Common name : Burmese Scarlet Minivet (English).

Material examined : East Garo Hills district : 2 ♂ Rongrenggiri, coll. A. N. Fernandez, 10 and 16.i. 1957. East Khasi Hills district : 1 ♂ Shillong, coll. T. D. Soota, 2.ii. 1974. West Garo Hills district : 2 ♂ and 1 ♀, Kherapara, coll. N. Majumdar, 19 and 22.xi. 1988 and 2.xii. 1988. 1 ♀, Dapbigiri, coll. G. M. Yazdani, 19.ii. 1971; 1 ♂ Selbergiri *c.* 5 km. from Rongrenggiri, coll. s. Biswas, 25.ii. 1975. Jaintia Hills district : 1 ♂ Garampani, coll. h. Khajuria, 24. xi. 1956; 1 ♂ Garampani on way to Raling, coll. S. K. Chanda, 11.xii. 1975. Ri-Bhoi Hills district : 1 ♂ Nongpho, coll. R. V. Sherard, 8. v. 1949; 1 ♂ umran G. S. Road, coll. E. D. Albinus, 15.x. 1969.

Diagnostic characters : In adult male, head and back glistening black. Breast, belly and vent orange red to deep scarlet. The first two primaries lack the red spot and the central rectrices are wholly black. In female, crown and back yellowish grey; chin, throat, breast and belly bright yellow and two yellow bars on black wings. First three primaries lack the yellow spot.

Measurements :	Wing	Tail	Bill
4 ♂	98-101(97)	92-97(95)	20-21(20)
2 ♀	99(2)	95, 98	21, 22

Distribution : India : Meghalaya (East and West Garo Hills, Jaintia Hills, East Khasi Hills and Ri-Bhoi Hills districts) : Nagaland. Elsewhere : Burma (Mayanmar).

Remarks : Godwin-Austen (1870, p.99) recorded it from the Khasi Hills.

266. ***Pericrocotus brevirostris brevirostris*** (Vigors)

1830. *Muscipeta brevirostris* Vigors, *Proc. Zool. Soc. Lond.* : 43 (Himalayas = Sikkim Foot hills,vide Mayr, 1940.

1971. *Pericrocotus brevirostris brevirostris,* Ali and Ripley, vol. 6: 30.

Common name : Shortbilled Minivet (English).

Material examined : Ri-Bhoi Hills district : 1 ♂ Barapani, *c.* 14 km. N. Of Shillong, coll. R. V. Sherard, 10.vi. 1949.

Diagnostic characters : Size smaller than the Bulbul. In male, entire head and back black; rump scarlet. A broad scarlet band running through the black wing. Tail steeply graduated. In female, back grey; throat yellow and all the red parts of male replaced by yellow.

Measurements : 1 ♂ : Wing 88, tail 90, bill 16.

Distribution : India : Meghalaya (East Khasi Hills and Ri-Bhoi Hills districts): Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), China, Nepal and Vietnam.

Remarks : Hume (1888, p. 96) reported it from Shillong, the East Khasi Hills. Godwin- Austen (1870. p. 99) also reported it from the Khasi Hills.

267. ***Pericrocotus ethologus laetus*** Mayr

1940. *Pericrocotus ethologus laetus* Mayr, *Ibis* : 717 (Jey luck, Sikkim).

1971. *Pericrocotus ethologus laetus,* Ali and Ripley, vol. 6: 34.

Common name : East Himalayan Longtailed Minivet (English).

Material examined : Nil.

Diagnostic characters : In male, entire head and back glossy black. Breast, abdomen and belly deep scarlet. A large scarlet patch on the black wing. Tail graduated black and scarlet. In female, the throat is yellow and all the parts of male replaced by yellow.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Orissa, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Ripley (1982, p. 303) recorded it from Meghalaya.

268. ***Pericrocotus solaris solaris*** Blyth

1846. *Pericrocotus solaris* Blyth, *J. Asiat. Soc. Beng.*, 15: 310 (Darjeeling = Darjiling, Darjiling dist. West Bengal, India).

1971. *Pericrocotus solaris solaris,* Ali and Ripley, vol. 6 : 36.

Common name : Yellow throated Minivet (English).

Material examined : Nil.

Diagnostic characters : In male, back and crown dark slaty; rump and upper tail-coverts deep scarlet. Wings and tail black and red. Chin greyish white. Throat orange-yellow. Breast and belly bright scarlat. In female, crown, neck and upper back ashy-grey, lower back olive-green and tail dark yellow. Wings and tail yellow, chin greyish white; throat, breast and belly yellow.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Godwin-Austen (1870, p.99) reported this bird from the Khasi Hills.

269. ***Pericrocotus roseus roseus*** (Vieillot)

1818. *Muscicapa rosea* Vieillot, *Nouv. Dict. d'Hist. Nat., nouv.* ed., 21 : 486 (Bengal).

1971. *Pericrocotus roseus roseus,* Ali and Ripley, vol. 6 : 37.

Common name : Rosy Minivet (English).

Material examined : Nil.

Diagnostic characters : Size slightly bigger than the preceding bird. In male, crown and back ashy-brown; rump and upper tail-coverts rosy pink. Wings and tail deep pink. Underparts rosy pink. In female, like male, but rosy and red portion replaced by pale yellow colour.

Distribution : India : Meghalaya (Khasi Hills district): Andhra Pradesh. Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Kerala, Madhya Pradesh, Maharathtra, Manipur, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), China, Nepal Pakistan and Vietnam.

Remarks : Godwin-Austen (1870,p.99) recorded it from the Khasi Hills.

Family IRENIDAE

Key to the genera of the family Irenidae

1. Plumage mainly yellow or grass-green 2

   Plumage mainly deep blue ..... ***Irena***

2. Plumage mainly yellow ..... ***Aegithina***

   Plumage mainly grass-green ..... ***Chloropsis***

Genus ***Aegithina*** Vieillot, 1816

270. ***Aegithina tiphia tiphia*** (Linnaeus)

1758. *Motacilla Tiphia* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 186 (Benghala = neighbourheed of Calcutta, Calcutta district, West Bengal, India).

1971. *Aegithina tiphia tiphia,* Ali and Ripley, vol. 6 : 49.

Common name : Common Iora (English) and Shanbeegi (Hindi).

Material examined : East Garo Hills district : 1 unsexed, Rongrenggiri, coll. H. Khajuria, 5.ii. 1957; 1 ♂ coll. N. Majumdar, 1.xii. 1988; Jayantia Hills district : 1 ♂ Garampani, coll. H. Khajuria, 21.xi. 1956.

Diagnostic characters : Size equal to sparrow. Crown, nape and back greenish. In male, crown nape and back greenish-yellow. Chin, throat and breast yellow. Black wing with two white wings-birds. Tail black. In female, yellowish-green with wing greenish brown with two white bars. *Call-note* : Chee-chit-chit-chit.

Measurements:	Wing	Tail	Bill[from the skull]
1 ♂	67	52	18

Distribution : India : Meghalaya (Garo Hills, Jayantia Hills and Khasi Hills districts) : Arunachal Pradesh, Assam, Manipur, Mizoram, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere: Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Godwin-Austen (1872), p. 142) recorded it from the Khasi Hills as *Iora typhia.*

Genus ***Chloropsis*** Jardine & Selby, 1827

271. ***Chloropsis aurifrons aurifrons*** (Temminck)

1829. *Phyllornis aurifrons* Temminck, PA, *Col. d'Ois. livr.* 81, pl.484 fig. 1 (Sumatra, India = Cachar).

1971. *Chloropsis aurifrons aurifrons,* Ali and Ripley, vol. 6 : 55.

Common name : Northern Goldfronted Chloropsis (English) and Harewa (Hindi).

Material examined : East Garo Hills district : 1 ♂ and 1 ♀, Rongrenggiri c. 4 km. East of Williamnagar, coll. N. Majumdar, 27.xi. 1988 and 1.xii. 1988.

Diagnostic characters : Size equal to Bulbul. Crown nape, back and tail leaf-green; forehead orange, shoulder with blue patches. Bill black and curved. Lores, eye, ear-coverts and lower throat black. Cheeks and chin dark blue.

Measurements :	Wing	Tail	Bill
1 ♂	85	65	22
1 ♀	85	65	21

Distribution : India : Meghalaya (East Garo Hills and East Khasi Hills districts) : Assam, Bihar, Himachal Pradesh, Orissa, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh and Nepal.

Remarks : Hume (1888, p. 184) reported this from Shillong and from several places in the Khasi Hills and listed it as *Phyllornis aurifrons* Temminck.

272. ***Chloropsis hardwickii hardwickii*** Jardine & Selby

1830. *Chloropsis hardwickii* Jardine & Selby, Ill. Orn., Add., 2:1 (Nepal).

1972. *Chloropsis hardwickii hardwickii,* Ali & Ripley. vol. 6 : 59.

Common name : Orangebellied Chloropsis (English).

Material examined : Nil.

Diagnostic characters : Size equal to a Bulbul. In male, crown, nape and back leaf-green: shoulder patch blue, wings dark purplish blue and tail blackish. Chin and throat blue-black, belly orange; dark blue moustachial streak on sides of head. In female, head and back green, shoulder patch pale blue. Underparts orange colour; tail green.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Bihar, Himachal Pradesh, Manipur, Nagaland, Punjab, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Indochina, Nepal and Thailand.

Remarks : Godwin-Austen (1870, p. 106) reported this bird from the Khasi Hills as *Phyllornis Hardwickii.*

273. ***Chloropsis cochinchinensis cochinchinensis*** (Gmelin)

1788. *Turdus cochinchinensis* Gmelin, *Syst. Nat.*, 1(2) : 825 (Cochin China).

1971. *Chloropsis cochinchinensis cochinchinensis,* Ali and Ripley, vol. 6 : 62.

Common name : Goldmantled Chloropsis (English).

Material examined : Nil.

Diagnostic characters : Green-leaf bird with greenish forehead. Shoulder patch blue. Outer primaries and outer tail-feathers bluish. Abdomen greenish-yellow. In male, check and throat black and in female, it is bluish-green.

Distribution : India : Meghalaya (West Garo Hills district) : Assam and Manipur. Elsewhere : Bangladesh, Burma (Myanmar), Indochinese countries and Thailand.

Remarks : Godwin-Austen (1870, p.207) recorded it from Diniapur on the Dunsiri river and from the Kylas peak of chickmung of the West Garo Hills and listed it as *Phyllornis chlorocephalus* Wald.

Genus ***Irena*** Horsfield, 1821

274. ***Irena puella puella*** (Latham)

1790. *Coracias puella* Latham, *Index Orn.*, 1 : 171 (India, restricted to Travancore, S. Kerala).

1971. *Irena puella puella,* Ali and Ripley, vol. 6 : 63.

Common name : Fairy Bluebird (English) and Dao gatang (Cachari).

Material examined : Jaintia Hills district: 1 ♂, Umkiang, coll. A. K. Mandal, 26.xi. 1988.

Diagnostic characters : In male, back, crown and tail brilliant ultramarine blue. Wing, sides of head, chin, throat and breast deep velvety black. Under tail-coverts blue. In female, dull blue-green with blackish lores.

Measurements : 1 ♂ : Wing 136, tail 100, bill 30 [from the skull].

Distribution : India : Meghalaya (Jaintia Hills district) : Andaman & Nicobar Islands, Assam, Kerala, Maharashtra, Manipur, Sikkim, Tamil Nadu, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) Indochinese countries and Nepal.

Family PYCNONOTIDAE

Key to the genera fo the family Pycnonotidae

1. Bill finch -like ..... ***Spizixos***
   Bill not finch like 2
2. Crown feathers crectile ..... ***Pycnonotus***
   Crown feathers often pointed and lengthened 3
3. Very long hairs springing from the nape and hindneck ..... ***Criniger***
   No long hairs springing from the nape or hindneck ..... ***Hypsipetes***

Genus *Spizixos* Blyth, 1845

275. *Spizixos canifrons canifrons* Blyth

1845. *Spizixos canifrons* Blyth, *J. Asiat. Soc. Beng.*, 14 : 571 (Khasia Hills).

1971. *Spizixos canifrons canifrons*, Ali and Ripley, vol. 6 : 66.

Common name : Finchbilled Bulbul (English).

Material examined : Nil.

Diagnostic characters : With a blackish crest. Back, wings and tail green. Head slaty, throat with whitish patch on sides of neck.

Distribution : India : Meghalaya (East Khasi Hills district) : Assam, Manipur and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Hume (1888, p. 180) reported a large series from the neighbourhood of Shillong and stated "Jerdon gave a specimen shot near Cherrapoonjee"

Genus *Pycnonotus* Boie, 1826

276. *Pycnonotus atriceps atriceps* (Temminck)

1822. *Turdus atriceps* Temminck, *Pl. Col., livr.* 25, pl. 147 (Java and Sumatra, restricted to Java by Robinson & Kloss, 1923, *J. Fed. Malay States Mus.*, 11 : 55).

1971. *Pycnonotus atriceps atriceps*, Ali and Ripley, vol. 6 : 68.

Common name : Blackheaded Bulbul (English).

Material examined : Nil.

Diagnostic characters : Two colour phases. Normal phase-Back olive; rump olive mottled with black. Wings olive and black. Head glossy black. Tail olive with a black subterminal band. Throat and upper breast glossy black. Lower breast olive, vent yellow. Grey phase-All olive or yellow parts reptaced by ashy-grey. Terminal band of tail white.

Distribution : India : Meghalaya : Assam, Manipur, Nagaland and Tripura. Elsewhere : Bangladesh, Borneo, Burma (Myanmar), throughout the Indochinese subregion, Malaysia, Palawan and Sunda Islands.

Remarks : Ripley (1982, p. 310) reported it from Meghalaya.

277. ***Pycnonotus melanicterus flaviventris*** (Tickell)

1833. *Vanga flaviventris* Tickell, *J. Asiat. Soc. Beng.*; 2 : 573 (Dampara in Dholbhum).

1971. *Pycnonotus melanicterus flaviventris,* Ali and Ripley, vol. 6 : 72

Common name : Blackcrested Yellow Bulbul (English) and Zarbulbul (Hindi).

Material examined : West Garo Hills district : 4 ♂ and 3 ♀, Kherapara, coll. N. Majumdar, 19, 20 and 21.xi. 1988. Jayantia Hills district : 1 ♂ Garampani coll. H. Khajuria, 24.xi. 1956.

Diagnostic characters : Entire head with crest glossy black. Back olive-yellow. Tail brown. Eyes pale yellow colour. Breast and belly yellow.

Measurements :	Wing	Tail	Bill
2 ♀	90, 92	85, 89	17, 18
2 ♀	84, 91	83, 85	17 (2)

Distribution : India : Meghalaya (Jayantia Hills districts, Khasi Hills district and West Garo Hills district) : Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Madhya Pradesh, Manipur, Mizoram, Nagaland, Orissa, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China and Nepal.

Remarks : Baker (1907, p. 790) recorded it from the Khasi Hills and listed it as *Rubigula flaviventris* Tickell.

278. ***Pycnonotus jocosus monticola*** (McClelland)

1840. *Ixos monticola* McClelland, *Proc. Zool. Soc. Lond.,* Pt. 7 : 160 ('Kassia mountains' Assam, India).

1971. *Pycnonotus jocosus monticola,* Ali and Ripley, vol. 6, p. 80.

Common name : Assam Redwhiskered Bulbul (English).

Material examined : West Garo Hills district : 1 ♂ and 1 ♀, Kherapara, coll. N. Majumdar, 20 and 21.xi. 1988.

Diagnostic characters : Back darker brown. Crest pointed and black. Crimson tufts behind the eyes. Underparts with a dark collar and scarlet under tail-coverts. Tail feathers while-tipped.

Measurements :	Wing	Tail	Bill
1 ♂	86	89	20
1 ♀	83	88	18

Distribution : India : Meghalaya (West Garo Hills district): Arunachal Pradesh, Assam and West Bengal. Elsewhere : Bhutan.

279. ***Pycnonotus jocosus emeria*** (Linnaeus)

1758. *Motacilla Emeria* Linnaeus, *Syst. Nat.*, 1 : 187 (Benghala = Bengal).

1971. *Pycnonotus jocosus emeria,* Ali and Ripley, vol. 6 : 79.

Common name : Bengal Redwhiskered Bulbul (English) and Pahari bulbul (Hindi).

Material examined : Nil.

Diagnostic characters : Forehead, crown with pointed black crest; back hair-brown. Crimson tufts behind the eyes. China, throat and belly white with dark collar on breast. Undertail-coverts scarlet.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills istricts) : Andhra Pradesh, Orissa, Tamil Nadu, Tripura and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar) and Thailand.

Remarks : Hume (1888, p. 181) remarked "common in many parts of the Garo and Khasi Hills" and listed it *Otocompsa emeria* Linnaeus.

280. ***Pycnonotus cafer bengalensis*** Blyth

1845. *Pycnonotus benglensis* Blyth, *J. Asiat. Soc. Beng.*, 74 : 566 (Bengal).

1971. *Pycnonotus cafer bengalensis,* Ali and Ripley, vol. 6 : 90.

Common name : Bengal Redvented bulbul (English) Kala bulbul (Hindi) and Dobret (Garo).

Material examined : East Garo Hills district : 1 ♂ Damra, coll. Z.S.I. Party, 20.vi. 1949. West Garo Hills district : 4 ♂ and 5 ♀, Kherapara, coll. N. Majumdar 16, 18 and 19.xi. 1988 and 1.xii. 1988. 2 ♀, Sibbari, coll. R. K. Ghosh, 16 and 18.vii. 1988, Jayantia Hills district : 1 ♂, Garampani, coll. H. Khajuria, 26. xi. 1956. East Khasi Hill district: 2 ♂, Motinagar (forest), Shillong, coll. T.D. Soota, 1 and 4.ii. 1974. Ri-Bhoi Hills district: 1 ♂, Barapani, coll. R.V. Sherard, 6.vi.1949 1 ♀, Umsa Nongharai, coll. H. Khajuria, 12.xii. 1956: 1 ♂, Barapani, coll. Z.S.I. party, 10.vi. 1949; 1 ♂, Hongpoh, coll. H.L. Hiteshi, 11.v.1949

Diagnostic characters : Crested head black. Back earth-brown. Black throat, breast and back with scale like marking with narrow pale edges.

Measurements :	Wing	Tail	Bills
5 ♂	101-108	95-103	22-23
	(106)	(98)	(22)
4 ♀	97-103	89-98	22
	(99)	(93)	

Distribution : India : Meghalaya (East and West Garo Hills district, East Khasi Hills district and Ri-Bhoi Hills district) : Arunachal Pradesh, Assam, Manipur and Tripura. Elsewhere : Bangladesh, Burma (Myanmar) and Yunnan (S. China).

Remarks : Hume (1888, p. 183) recorded it from the Khasi Hills and listed it as *Molpastes pygaeus.*

281. ***Pycnonotus cafer stanfordi*** Deignan

1949. *Pycnonotus cafer stanfordi* Deignan, *Jour. Washington Acad. Sci.*, 39 : 227 (Taro or Dalu, upper Chindwin district, Burma = Myanmar).

1971. *Pycnonotus cafer stanfordi,* Ali and Ripley, vol. 6 : 91.

Common name : Burmese Redvented Bulbul (English).

Material examined : Nil.

Diagnostic characters : Back earth-brown. Head black with less crested feathers. Feathers of back and breast with scale-like markings with broad pale edges. Rump white. Vent Scarlet. White-tipped blackish tail.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh. Assam, Manipur and Tripura. Elsewhere : Bangladesh, Burma (Myammar) and Yunnan (S. China).

Remarks : Hume (1888, p. 183) reported it "from Cherrapoonjee, Shillong" and listed it as *molpastes burmanicus* Sharpe.

282. ***Pycnonotus striatus striatus*** (Blyth)

1842. *Trichophorus striatus* Blyth, *J. Asiat. Soc. Beng.* 11 : 184 (Darjeeling = Darjiling, Darjiling dist. West Bengal, India.)

1971. *Pycnonotus striatus striatus,* Ali and Ripley, vol. 6 :92.

Common name : Striated green Bulbul (English).

Material examined : Nil.

Diagnostic characters : Back and wings olive-green with fine white streaks. Crest brownish. Wings and tail olive and brown. Lores yellow. Chin and throat yellow, the later with dark stipples. Breast dark grey, below olive striped with pale yellow.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Sikkim. Elsewhere : Bhutan, Burma (Myanmar) and Nepal.

Remarks : Baker (1907, p. 719) obtained it from the Khasi Hills.

283. ***Pycnonotus flavescens flavescens*** Blyth

1845. *Pycnonotus flavescens* Blyth, *J. Asiat. Sec. Beng.,* 14 : 568(Arakan, Barma-Myanmar).

1971. *Pycnonotus flavescens flavescens,* Ali and Ripley, vol. 6 : 96.

Common name : Blyth's Bulbul (English).

Material examined : East Khasi Hills district : 1♀, Risa Colony, Shillong, coll. E. D. Albinus, 12. xii. 1979.

Diagnostic characters : Back and wings olive, head greyish brown. White lores and superclium, under tail-coverts bright yellow.

Measurements : 1 ♀: Wing 85, tail 97, bill 16.

Distribution : India : Maghalaya (East Khasi Hills district) : Assam, Manipur and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Hume (1888, p. 179) stated that "this species must be very abundant about Shillong" and listed it as *Ixus flavescens* Blyth.

Genus ***Criniger*** Temminck, 1820

284. ***Criniger flaveolus flaveolus*** (Gould)

1836. *Trichophorus flaveolus* Gould, *Proc. Zool. Soc. Lond.* : 6 (Nepal, vide Koelz, 1954, Contrib. *Inst., Regional Exploration No.* 1 : 10).

1971. *Criniger flaveolus flaveolus,* Ali and Ripley, vol. 6 : 100.

Common name : Whitethroated Bulbul (English).

Material examine : East Garo Hills district : 1 ♀, Rangrenggiri, coll. R. K. Ghose, 8. vii. 1988; 1 ♂, Rrongrenggiri, c. 4 km. E. of Williamnagar, coll. N. Majumder, 27.xi.1988Jaintia Hills district : 1 ♀, Umkiang, coll. A.K. Mandal, 27.xi. 1988. Ri-Bhoi Hills district : 1 ♀, Nongpoh, coll. Z.S.I. party, 3.vi. 1949. West Garo Hills district : 1 ♀, Phulbari, coll. A.S.Rajagopal, 20.ii. 1965.

Diagnostic characters : Back olive-green; crown with crest rufous-brown. Wings and tail with rufous-brown; spercilium whitish, sides of head grey; chin and throat white, breast and belly lemon-yellow.

Measurements :	Wing	Tail	Bill
2♂	100, 102	85, 90	21 (2)
2♀	94, 105	85, 90	20, 21

Distribution : India : Meghalaya (East Garo Hills, Jaintia Hills, Khasi Hills, Ri-Bhoi Hills and West Garo Hills districts) : Aruanchal Pradesh, Assam, Manipur, Nagaland, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Hume (1888, p. 178) remarked "Godwin-Austen appears to have got it from the Khasi Hills"

Genus ***Hypsipetes*** Vigors, 1831

285. ***Hypsipetes viridescens cacharensis*** (Deignan)

1948. *Microscelis viridescens cacharensis* Deignan, *Proc. Biol. Soc. Washintonc* 61 : 3 ('Chutla Bhil' Surma Valley and Hill Division, Cachar).

1971. *Hypsipetes viridescens cacharensis,* Ali and Ripley, vol.6 : 102.

Common name : Olive Bulbul (English).

Material examined : Nil.

Diagnostic characters : Back and wings olive. Tail rufous-brown. Throat and breast greyish yellow. Belly bright yellow; under tail-coverts tawny.

Distribution : India : Meghalaya : Assam and Manipur. Elsewhere : Bangladesh.

Remarks : Ripley (1982, p. 316) recorded it from Meghalaya.

286. ***Hypsipetes meclellandi mcclellandi*** Horsfield

1840. (1839). *Hypsipetes McClellandi* Horsfield, *Proc. Zool. Soc. Lond.* : 159 (Assam).

1971. *Hypsipetes mcclellandi mcclellandi,* Ali and Ripley, vol.6 : 107.

Common name : Rufousbellied Bulbul (English).

Material examined : East Khasi Hills district : 1 unsexed, Motinagar Forest, Shillong, coll. T. D. Soota, 4.ii. 1974.

Diagnostic characters : Back, wings and tail olive-green. Crown dark-brown with fine whitish streaks, slightly crested. Chin and throat dark grey streaked with whitish, breast cinnamon with fine white streaks, paler on belly.

Measurements : 1 unsexed : Wing 107, tail 105, bill 26.

Distribution : India : Meghalaya (East Khasi Hills district): Northern Himalaya from Uttar Pradesh to Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Hume (1888, p. 176) reported this bird "from Shillong and the Khasi Hills"

287. ***Hypsipetes flavalus flavalus*** (Blyth)

1845. *Hemixox flavala* Blyth, *J. Asiat. Soc. Beng.*, 14 : 572 (Sub-Himalayan Ranges).

1971. *Hypsipetes flavalus flavalus,* Ali and Ripley, vol.6 : 108.

Common name : Browneared Bulbul (English).

Material examined : Nil.

Diagnostic characters : Head and back dark grey. Crest short. Ear-coverts light brown. Cheeks black. Wings brown with a large olive-yellow patch. Tail brown edged with olive. Throat and belly white. Breast pale grey.

Distribution : India : Meghalaya (Khasi Hills district) : Northern Himalayas from Himachal Pradesh to Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Hume (1888, p. 176) reported and stated "this species from Shillong and the Khasi Hills" and listed it as *Hemixus flavala* Horsfield.

288. ***Hypsipetes madagascariensis nigrescens*** Baker

1917. *Hypsipetes psaroides nigrescens* Baker, *Bull. Brit. Orn. cl.*, 38 : 15 (Upper Chindwin, Burma-Myanmar).

1971. *Hypsipetes madagascariensis nigrescens,* Ali and Ripley, vol.6 : 114.

Common name : Assam Black Bulbul (English).

Material examined : Khasi Hills district : 4 ♂ and 2 ♀, Barapani, coll. H.L. Hiteshi and R. V. Sherard, 20 and 23. v. 1949; 6, 7 and 10.vi. 1949; 1♀, coll. E. D. Albinus, 21.i. 1973.

Diagnostic characters : Back, wings and tail slate-grey. Crest black. Tail slightly forked. Bright red bill, legs and feet.

Measurements :	Wing	Tail	Bill
1♂	117	98	25
1♀	120	102	26

Distribution : India : Meghalaya (Khasi Hills district) : Arunchal Pradesh, Assam, Manipur and Nagaland Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Hume (1888, p. 176) reported it "from Shillong and the Khasi Hills" and listed it as *Hypsipetes psaroides* Vigors.

Family MUSCICAPIDAE

Key to the genera of the family Muscicapidae

1. Bill broad and flat 38
   Bill slender or very variable 2
2. Bill variable 16
   Bill slender, very long or small 3
3. Bill very long 4
   Bill small 42
4. Wing usually over 100 mm 5
   Wing usually below 100 mm 12
5. Rictal bristles obsolate ..... ***Cochoa***
   Rictal bristles short or well developed 6
6. Crown white ..... ***Chaimarrornis***
   Crown other than white 7
7. Tail deeply forked; shorter than the wing ..... ***Enicurus***
   Tail not forked 8
8. Sexes dissimilar 9
   Sexes alike ..... ***Myiophoneus***
9. White on bases of primaries and secondaries 10
   No white on the bases of primaries and secondaries ..... ***Turdus***
10. Plumage largely with blue or bluish ..... ***Monticola***
    Plumage largely with brownish and slaty ..... ***Zoothera***
11. Rectrices well-developed or strong 12
    Rectrices very short 14
12. Wing pointed and bill notched ..... ***Saxicola***
    Wing round 13
13. White rump on female ..... ***Rhyacornis***
    No white rump on female ..... ***Brachypteryx***
14. Throat with a prominent markings-scarlet or blue ..... ***Erithacus***
    Throat without markings 15
15. Bill stout and straight ..... ***Copsychus***
    Bill short and slender ..... ***Phoenicurus***

16. Bill long, curved downwards 17
    Bill long not curved downwards 18
17. Bill compressed ..... ***Pomatorhinus***
    Bill more extremely curved ..... ***Xyphirynchus***
18. Wing usually more than 100 mm 19
    Wing less than 100 mm. 21
19. Head, back and tail-feathers uniform ..... ***Turdoides***
    Head, back and tail-feathers mot uniform ..... .20.
20. Wing edged with a bright colour ..... ***Garrulax***
    Wing edged without bright colour ..... ***Heterophasia***
21. Head with an erectile crest ..... ***Yuhina***
    Head without erectile crest 22
22. Forehead and crown with rigid shafts of the feathers ..... ***Timalia***
    No rigid shafts of the feathers on forehead and crown 23
23. Wing feathers narrowly cross-barred ..... ***Actinodura***
    Wing feathers not cross-barred 24
24. Short tail of 6 feathers or 10 feathers 25
    Tail feathers more than 10 26
25. Tail feathers 6 in numbers ..... ***Pnoepyga***
    Tail feathers 10 in numbers ..... ***Spelaeornis***
26. Nostrils covered by operculum or by feathers 28
    Nostrils exposed 27
27. Bill slender and straight ..... ***Napothera***
    Bill slightly curved ..... ***Macronous***
28. Nostrils covered by operculum ..... ***Stachyris***
    Nostrils covered by feathers ..... 29.
29. Rictal bristles very long and stiff ..... ***Gampsorhynchus***
    Rictal bristles well developed, short or absent 30
30. Rictal bristles well developed or short 31
    Rictal bristles absent ..... ***Sphenocincla***
31. Rictal bristles well developed 35
32. Bill very deep and short with sinnurus cutting edges ..... ***Parodoxornis***

Bill long or stout & strong 33

33. Bill long or straight and notched at the tip 34

34. Bill long ..... ***Rimator***

Bill straight and notched at the tip ..... ***Pellorneum***

35. Rictal bristles many 36

Rictal bristles 3 37

36. Bill laterally compressed ..... ***Trichastoma***

Bill not compressed ..... ***Alcippe***

37. Bill slightly curved ..... ***Leiothrix***

Bill straight and pointed ..... ***Minla***

38. Central pair of rectrices in ♂ greatly elongaded ..... ***Terpsiphone***

Central pair of rectrices not elongated 39

39. Rictal bristles well developed; bill depressed ..... ***Muscicapa***

Rictal bristles numerous and long 40

40. Ist primary short ..... ***Culicicapa***

1st primary not short 41

41. Bill densely covered with plumules at base ..... ***Hypothymes***

Bill not covered with plumules, bill large ..... ***Rhipidura***

42. Body and wing with broad black stripes, tail long and graduated ..... ***Megalurus***

Body not with broad black stripes 43

43. 2nd or 3rd Primary reaching to the tip of the wing 44

2nd and 3rd primaries not reaching to the tip of wing 45

44. 2nd primary reaching nearly to the tip of wing ..... ***Locustella***

3rd primary reaching to the tip of the wing ..... ***Phragmaticola***

45. Rictal bristles reaching to the tip of the bill ..... ***Seicercus***

Rictal bristles not reaching to the tip of the bill 46

46. Rictal bristles 2 in numbers ..... ***Cisticola***

Rictal bristles well developed 3, 5, or short 47

47. Rictal bristles 5 in numbers 48

Eictal bristles 3 or inconspicuous 49

48. Rictal bristles arranged vertically in front of eye ..... ***Chaetornis***

Rictal bristles arranged horizontally on the base of bill ..... ***Abroscopus***

49. Eictal bristles 3 in numbers; bill straight and pointed ..... ***Prinia***

Rictal bristles short 50

50. Bill compressed at the tip or broad and flat 51

Bill thin, narrow and pointed 52

51. Bill compressed at tip ..... ***Tesia***

Bill broad and flat ..... ***Orthotomus***

52. Rectrices pointed ..... ***Bradypterus***

Rectrices not pointed 53

53. Lateral rectrices shorter than the middle pair ..... ***Cettia***

Lateral rectries not shorter than the middle pair ..... ***Phylloscopus***

Genus ***Pellorneum*** Swainson, 1932

289. ***Pellorneum ruficeps mandellii*** Blanford

1871. *Pellorneum Mandellii* Blanford, *Proc. Asiat. Soc. Beng,* No. 9 : 216 (Sikkim).

1971. *Pellorneum ruficeps mandellii,* Ali and Ripley, vol. 6 : 116.

Common name : Mandell's Spotted Babbler (English).

Material examined ; Nil.

Diagnostic characters : Back, wings and tail olive-brown with brown cap. Mantle streaked with black and buff. Ear-coverts light brown. Chin and throat white; breast and belly buff, boldly streaked and spotted with dark brown. Legs pale fleshy.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Arunachl Pradesh, Sikkim and West Bengal. Elsewhere : Nepal and Bhutan.

Remarks : Godwin-Austen recorded it from the Garo hills. Hume (1888, p. 144) reported it from the Khasi Hills. Baker (1907, p. 787) also reported it from the Khasi Hills.

290. ***Pellorneum ruficeps chamelum*** Deignan

1947. *Pellorneum reficeps chamelum* Deignan, *Smith. Misc. Coll.,* 107: 6 (Gunjong, Cachar, Assam).

1971. *Pellorneum ruficeps chamelum,* Ali and Ripley, vol. 6 : 119.

Common name : Assam Spotted Babbler (English).

Material examined : East Garo Hills district : 1 ♂ Williamnagar, coll. A. K. Mandal, 5.xii. 1988. Ri-Bhoi Hills district: 1 ♂ Barapani, coll. R. V. Sherard, 11.vi. 1949.

Diagnostic characters : Upper back brown with streaked. Crown dark chestnut-brown. Ear-coverts brown. A light superciliary stripe extending well behind the eye. Throat white. Breast and belly buff boldly streaked and spotted with dark brown.

Measurements : 2 ♂ : Wing 65, 70; tail 61, 66; bill [from the skull] 18(2).

Distribution : India : Meghalaya (East Garo Hills Khasi Hills and Ri-Bhoi Hills districts): Assam and Nagaland. Elsewhere : Bangladesh.

291. ***Pellorneum pallustre*** Gould

1872. *Pellorneum palustre* Gould, *Bds. Asia,* 3 : pl. 65, pt. 24 (Cachar, Assam).

1971. *Pellorneum palustre,* Ali and Ripley, vol. 6 : 121.

Common name : Marsh Spotted Babbler (English).

Material examined : Nil.

Diagnostic characters : Back and tail olive-brown. Lores whitish. Sides of neck, flanks and a band across the breast ochraceous, more or less streaked with brown. Chin white, throat and upper breast white streaked with brown. Centre of belly white.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesha and Assam, Elsewhere:Bangladesh.

Remarks : Hume (1888, p. 146) reported it from the Khasi Hills. Godwin-Austen (1872, p. 142) obtained it from the "beels" between Bolgunj and Chatak"

292. ***Pellorneum albiventre albiventre*** (Godwin-Austen)

1876. *Neornis albiventris* Godwin- Austen, *J. Asiat. Soc. Beng.*, 45 : 199 (Manipur Valley).

1971. *Pellorneum albiventre albiventre*, Ali and Ripley, vol. 6 : 125.

Common name : Assam Brown Babbler (English).

Material examined : Nil.

Diagnostic characters : back, wings and tail brown. Tail very short. Throat white with faintly spotted. Belly whitish; breast and vent whitish with a rustly wash.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Baker (1907, p.787) reported it from the Khasi Hills.

Genus ***Trichastoma*** Blyth, 1842

293. ***Trichastoma tickelli assamensis*** (Sharpe)

1883. *Drymocataphus assamensis* Sharpe, *Cat. Bds. Brit. Mus.*, 7 : 557 (Dhollah, Assam).

1971. *Trichastoma tickelli assamensis,* Ali and Ripley, vol. 6 : 126.

Common name : Tickell's Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, Wings and tail olive-brown. Underparts buffish white. Tail short and legs long.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Ripley (1982, p. 322) recorded it from Meghalaya

294. ***Trichastoma abbotti abbotti*** (Blyth)

1845. *Malacocincla Abbotti* Blyth, *J. Asiat. Soc. Beng.*, 14 : 601. (Ramree Island, Arakan, Burma = Myanmar).

1972. *Trichastoma abbotti abbotti,* Ali and Ripley, vol. 6 : 127.

Common name : abbott's Babbler (English).

Material examined : Nil.

Diagnostic characters : Above, head, back and tail olive-brown; chin and throat greyish white; whitish belly. Breast and flanks olive. Undertail-coverts bright ochraceous.

Distribution : India : Meghalaya (East Khasi Hills and South Garo Hills districts) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Orissa, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar)Nepal and Thailand.

Remarks : Godwin-Austen (1872, p. 269) recorded it from the base of the South Garo Hills. Hume (1888, P. 138) reported it from Shillong, the East Khasi Hills.

Genus ***Pomatorhinus*** Horsfield, 1821

295. ***Pomatorhinus schisticeps schisticeps*** Hodgson

1838. *Pomatorhinus schisticeps* Hogson, *Asiat. Res.*, 19 : 181 (Nepal).

1971. *Pomatorhinus schisticeps schisticeps,* Ali and Ripley, vol. 6 : 131.

Common name : East Himalayan Slatyheaded Scimitar Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, wings and tail olive-brown. Crown dark slaty. A white supercilium extending behind the eye. Ear-coverts and lores blackish; chin, throat, breast and belly whitish, bordered with chestnut. Under tail-coverts olive-brown.

Distribution : India : Meghalaya (Khasi Hills district) : Northern Himalayas foothills from Uttar Pradesh to Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Hume (1888, p. 148) reported it from the Khasi hills.

296. ***Pomatorhinus ruficollis bakeri*** Harington

1914. *Pomatorhinus ruficollis bakeri* Harington, *Bombay nat. Hist. Soc.*, 23 : 336 (Shillong, Khasia Hills).

1971. *Pomatorhinus ruficollis bakeri,* Ali and Ripley, vol. 6 : 140.

Common name : Cachar Rufousnecked scimitar Babbler (English).

Material examined : East Khasi Hills district : 1 ♂, Risa colony, Shillong, coll. E. D. Albinus. 1.xii. 1978.

Diagnostic characters : Back, wings and tail olive-brown. A rufous-chestnut patch on sides of neck. A black band from lores to ear-coverts. White supercilium from bill to nape. Throat white, breast rusty brown streaked with white.

Measurements : 1 ♂ : Wing 82, tail 86, bill 23.

Distribution : India : Meghalaya (East Khasi Hills district) : Assam, Manipur and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar)

Remarks : Hume (1888, p. 146) stated "about Shillong this is very common"

297. ***Pomatorhinus erythrogenys meclellandi*** Godwin-Austen

1837. *Pomatorhinus McClellandi* Godwin-Austen, *J.Asiat. Soc. Beng.*, 39 : 103, pt. 2 (Khasia Hills).

1971. *Pomatorhinus erythrogenys meclellandi,* Ali and Ripley, vol. 6: 143.

Common name : Assam Rustychecked Scimitar Babbler (English).

Material examined : Nil

Diagnostic characters : Back, wings and tail olive-brown, sides of head, lores and neck rusty. Chin and throat white; breast streaked with dark ashy-brown.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh, and Burma (Myanmar).

Remarks : Hume (1888, p. 151) remarked "we have many specimens of this species from Shillong, and other places in the Khasi Hills"

298. ***Pomatorhinus hypoleucos hypoleucos*** (Blyth)

1844. *Orthorhinus hypoleucos* Blyth, *J. Asiat. Soc. Beng.*, 13 : 371 (Arakan, Burma = Myanmar).

1971. *Pomatorhinus hypoleucos hypoleucos,* Ali and Ripley, vol. 6 : 144.

Common name : Large Scimitar Babbler (English).

Material examined : Nil.

Diagnostic characters : Back olive-brown; wings and tail brown. A rusty line from eye to nape. Throat, breast and belly white. Vent slaty. Bill long, stout and curved.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Arunachal Pradesh, Assam and Tripura. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Hume (1888, p. 153) reported it from the Garo Hills and Khasi Hills.

299. ***Pomatorhinus ferruginosus formosus*** Koelz

1952. *Pomatorhnus ferruginosus formosus* Koelz, *Jour. Zool. Soc. India, 4* : 39 (Tura Mountain, Garo Hills).

1971. *Pomatorhinus ferruginosus formosus,* Ali and Ripley, vol. 6: 146.

Common name : Assam Coralbilled Seimitar Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, wings and tail olive-brown Throat and breast ochraceous. Crown slightly darker than back. Lores whitish. A black line over supercilium.

Distribution : India : Meghalaya : Assam, Manipur, and Nagaland.

Remarks : Ripley (1982, p. 326) reported it from Meghalaya.

300. ***Pomatorhinus ferruginosus phayrei*** Blyth

1847. *P. (omatorhinus) phayrei* Blyth, *J. Asiat. Soc. Beng.*, 16 : 452 (Arakan, Burma = Myanmar).

1971. *Pomatorhinus ferruginosus phayrei,* Ali and Ripley, vol. 6 : 147.

Common name ; Mizo Coralbilled Scimitar Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, wings and tail olive-brown crown. Concolorous with back. Lores rusty.

Distribution : India : (East Khasi Hills district) : Assam, Manipur and Nagaland.

Remarks : Godwin-Austen (1870 p. 103) recorded it from Cherrapunji. Hume (1888, p. 147) reported it from Shillong, the East Khasi hills.

301. ***Pomatorhinus ochraceiceps austeni*** Hume

1881. *Pomatorhinus austeni* Hume *Str. Feath.*, 10, 152 (E. Manipur)

1971. *Pomatorhinus ochraceiceps austeni,* Ali and Ripley, vol. 6: 148.

Common name : Manipur Longbilled Scimitar Babbler (English).

Material examined : Nil.

Diagnostic characters : Back olive. Wings and tail brown. Crown and nape tawny-olive. Supercilium white. Lores black; chin and throat white. Breast and belly creamy white washed with buff. Bill long, deeply curved, oranged.

Distribution : India : Meghalaya : Assam, Manipur and Nagaland.

Remarks : Ripley (1982, p. 327) reported it from Meghalaya.

Genus ***Xiphirhynchus*** Blyth, 1842

302. ***Xiphirhynchus superciliaris intextus*** Ripley

1948. *Xiphirhynchus superciliaris intextus,* Ripley, *Proc. Biol. Soc. Washington,* 61 : 105 (Dreyi, Mishmi Hills, NE. assam).

1971. *Xiphirhynchus superciliaris intextus,* Ali and Ripley, vol. 6 : 151.

Common name : Assam Slenderbilled Scimitar Babbler (English).

Material examined : Nil.

Diagnostic characters : Back rufous-brown; wings and tail dark brown. Crown dark slaty. A long white supercilium. Throat ashy streaked with white. Breast and abdomen cinnamon. Bill black, very long, slender and curved.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam,Manipur, Mizoram and Nagaland. Elsewhere : Bhangladesh.

Remarks : Ripley (1982, p. 327) recorded it from Meghalaya.

Genus ***Rimator*** Blyth, 1847

303. ***Rimator malacoptilus*** Blyth

1847. *Rimator malacoptilus* Blyth, *J. Asiat. Soc. Bang.* 16 : 154 ((Darjeeling = Darjiling, Darjiling dist. West Bengal, India).

1971. *Rimator malacoptilus,* Ali and Ripley, vol. 6 : 151.

Common name : Longbilled Wren-Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, wings and tail dark rufescent brown with buff shaft-streak. Chin white. Throat, breast and abdomen pale rufescent brown with whitish shaft-streaks. Under tail-coverts ferruginous.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Mizoram and Sikkim. Elsewhere : Bhutan, Burma (Myanmar), Indonesia and Vietnam.

Remarks : Koelz (1954, p. 5) recorded it from "Mawphlang, the East Khasia Hills" as *Rimator malacoptilus amadoni.*

Genus ***Napothera*** G. R. Gray, 1842

304. ***Napothera brevicaudata striata*** (Blyth)

1870: *Turdinus striatus* Blyth, *J. Asiat. Soc. Beng.*, 39 : 269 (Khasia Hills).

1971. *Napothera brevicaudate striata*, Ali and Ripley, vol. 6 : 153.

Common name : Streaked Wren-Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, wings and tail brown. Crown and upper back feathers margined with brown, produce a scaly appearence. Throat grey-brown streaked with white. Centre of abdomen whitish. Vent and undertail-coverts ochraceous.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Assam and Manipur. Eleswhere : Burma (Myanmar).

Remarks : Hume (1888, p. 140) reported "Godwin--Austen procured it along the southern bases of the Garo and Khasi Hills" and listed it as *Turdinus brevicaudatus* Blyth.

305. ***Napothera epilepidota roberti*** (Godwin-Austen & Walden)

1875. *Pnoepyga roberti* Godwin-Austen and Walden, *Ibis* : 252 (Chakha, Manipur).

1971. *Napothera epilepidota roberti,* Ali and Ripley, vol. 6 : 154.

Common name : Austen's Small Wren-Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, Wings and tail dark brown. The crown and upper back feathers give a scaly appearance. A light supercilium from lores to nape. Throat white streaked with dark brown.

Distribution : India : Meghalaya : Assam, Manipur and Nagaland.

Remarks : Ripley (1982, p. 329) recorded it from Meghalaya.

Genus ***Phoepyga*** Hodgson, 1844

306. ***Pnoepyga albiventer albiventure*** (Hodgson)

1837. *Tesia albiventer* Hodgson, *J. Asiat. Soc. Beng.*, 6 : 102 (Nepal, restricted by Ripley (Synopsis : 357) to Ilam dist., eastern nepal, re-restricted to Chandragiri above Thankot by Biswas (*JBNHS* 59, : 204-5)

1971. *Pnoepyga albiventer albiventer,* Ali and Ripley, vol. 6 : 156.

Common name : Eastern Scalybreasted wren-Babbler (English).

Material examined : Nil.

Diagnostic characters : Colouration in two phases : Colouration in two phases : White phase :- Back and head olive-brown with a slightly scaly appearance. Throat, breast and belly white, each feather with dark centre and a dark narrow margin producing a scaly effect. Fulvous phase : Head and back olive-brown with a fulvous drop on each feather. Throat, breast and belly fulvous.

Distribution : India : Meghalaya (East Khasi Hills districts) : Arunachal Pradesh, Assam and Sikkim. Elsewhere : Bhutan, Nepal, China and Vietnum.

Remarks : Hume (1888, p. 119) reported it from Shillong, the East Khasi Hills and Godwin-Austen (1870, p.101) collected from the Hengdon peak of the Khasi Hills and listed it as *Pnoepyga squamata* Gould.

307. ***Pnoepyga pusilla pusilla*** Hodgson

1845. *Pnoepyga pusilla* Hodgson, *Proc. Zool. Soc. Lond.*, pt. 13 : 25 (Nepal).

1971. *Pnoepyga pusilla pusilla,* Ali and Ripley, vol. 6 : 158.

Common name : Brown Wren-Babbler (English).

Material examined : Nil.

Diagnostic characters : Similar to the preceding bird, only distinguished it from the former by smaller size.

Distribution : India : Meghalaya (East Khasi Hills district): Arunachal Pradesh, Assam, Nagaland, Sikkim and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), Nepal, Thailand and Vietnam.

Remarks : Hume (1888, p. 119) reported it from Shillong, the East Khasi Hills. Godwin-Austen (1870, p. 101) collected it from several parts of the Khasi Hills.

Genus ***Spelaeornis*** David and Oustalet, 1877

308. ***Spelaeornis longicaudatus*** (Moore)

1854. *Pnoepyga longicaudata* Moore, In Horsfield & Moore, *Cat. Birds, Mus., E. I. Co.* 1 : 398 (Afghanistan errore = Khasi Hills, Assam).

1971. *Spelaeornis longicaudatus,* Ali and Ripley, vol. 6 : 162.

Common name : Longtailed Wren-Babbler (English).

Material examined : Nil.

Diagnostic characters : Back brown with a scaly appearance Crown. grey-brown. Chin whitish; throat and upper breast ochraceous buff. Central of belly white.

Distribution : India : Meghalaya (East Khasi Hills district) : Assam and Manipur.

Remarks : Hume (1888, p.119) recorded it from Cherrapoonjee, the East Khasi Hills. Godwin-Austin (1870, p.101) recorded it from Cherrapoonjee, the East Khasi Hills and listed it as *Pnoepyga longicaudata* Moore.

309. ***Spelaeornis chocolatinus chocolatinus*** (Godwin-Austen & Walden)

1875. *Pnoepyga chocolatina* Godwin-Austen & Welden, *Ibis* : 252 (Kedimai, Manipur).

1971. *Spelaeornis chocolatinus chocolatinus,* Ali and Ripley, vol.6: 163.

Common name ; Streaked Longtailed Wren-babbler (English).

Material examined : Nil.

Diagnostic characters : In male, crown and back dark brown with a scaly appearance. Chin and throat white, the later finely speckled. Belly white. In female, colouration more rufescent above and below.

Distribution : India : Meghalaya (Khasi Hills district): Assam, Manipur and Nagaland.

Remarks : Hume (1888, p. 120) reported it from Shillong, East the Khasi Hills and listed it as *Pnoepyga chocolatina* Godwin-Austen & Walden.

310. ***Spelaeornis formosus*** (Walden)

1874. *Troglodytes formosus* Walden, *Ibis* : 91 (Darjeeling = Darjiling, Darjiling dist., West Bengal, India).

1971. *Spelaeornis formosus,* Ali and Ripley, vol. 6 : 166.

Common name : Spotted Short-tailed Wren-Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, head and wing-coverts olive-brown speckled with white. Wings, tail and rump chestnut brown barred with black. Throat and breast cinnamon densely spotted with white. Belly cinnamon speckled with black.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma, Myanmar and China.

Remarks : Ripley (1982, p. 332) recorded it from Meghalaya.

Genus ***Sphenocichla*** Godwin-Austen & Walden, 1875

311. ***Sphenocichla humei roberti*** Godwin-Austen & Walden

1875. *Sphenocichla roberti* Godwin-Austen & Walden, *Ibis* : 251 (Hemes Peak, North Cachar hills).

1971. *Sphenocichla humei roberti,* Ali and Ripley, vol. 6 ; 168.

Common name : Cachar Wedgebilled Wren (English).

Material examined : Nil.

Diagnostic characters : Lower back, wings and tail very dark brown with barred. Crown and upper back mottled with golden brown with fine white shaft-streaks. Feathers of throat and breast ashy-brown with black margins and white submargins.

Distribution : India : Meghalaya : Assam, Manipur and Nagaland. Elsewhere : Burma (Myanmar).

Remarks : Ripley (1982, p. 333) reported it from Meghalaya.

Genus ***Stachyris*** Hodgson, 1844

312. ***Stachyris rufifrons ambigua*** (Harington)

1915. *Stachyridopsis rufifrons ambigua* Harington, JBNHS, 23 : 631. (Gunjong, north Cachar, Assam).

1971. *Stachyris rufifrons ambigua,* Ali and Ripley, vol. 6 : 169.

Common name : Assam Redfronted Babbler (English).

Material examined : Nil.

Diagnostic characters ; Back and wings olive-brown tinged with rufous. Crown rufous; supercilium pale grey. Chin white, throat ochraceous and belly white. Vent washed with ochraceous.

Distribution : India : Meghalaya : Andhra Pradesh, Assam, Manipur, Nagaland and Sikkim. Elsewhere : Bangladesh.

Remarks : Ripley (1982, p. 333)) reported it from Meghalaya.

313. ***Stachyris ruficeps ruficeps*** Blyth

1847. *Stachyris ruficeps* Blyth, *J. Asiat. Soc. Beng.*,16 : 452 (Darjeeling = Darjiling, Darjiling dist.West Bengal, India).

1971. *Stachris ruficeps ruficeps,* Ali and Ripley, vol. 6.: 170.

Common name : Redheaded Babbler (English).

Material examined : Nil.

Diagnostic characters : Crown rufous-brown. Back greyish olive-brown. Lores and orbital area pale yellowish. Chin and throat pale yellow streaked with black. Breast and belly pale yellowish.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Orissa and Sikkim and West Bengal. Elsewhere : Nepal, Burma(Myanmar), China, Taiwan, Hinan and Vietnam.

Remarks : Godwin-Austen (1870, p. 103) rep[orted it from the Khasi Hills.

314. ***Stachyris chrysaea chrysaea*** Blyth

1844. *Stachyris chrysaea* Blyth, *J. Asiat. Soc. Beng.,* 13 : 379 (Nepal).

1971. *Stachyris chrysaea chrysaea,* Ali and Ripley, vol. 6 : 172.

Common name : Nepal Goldenheaded Babbler (English).

Material examined : Nil.

Diagnostic characters : Back yellowish olive. Forehead golden yellow. Crown and nape golden yellow streaked with black. Lores and short moustachial stripe black. Chin, throat, breast and abdomen bright yellow.

Distribution : India : Meghalaya (Khasi Hills district): Arunachal Pradesh, Assam, Manipur, Nagaland and Sikkim. Elsewhere : Nepal, Bhutan, Burma (Myanmar) and China.

Remarks : Hume (1888, p.142) reported form Mouflong, the Khasi Hills.

315. ***Stachyris nigriceps spadix*** Ripley

1948. *Stachyris nigriceps spadix* Ripley, *Bull. Brit., Orn. Cl.*, 68 : 89 (Laisung, north Cachar, Assam).

1971. *Stachyris nigriceps spadix,* Ali and Ripley, vol. 6: 176.

Common name : Assam Black-throated Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, tail and wings olive-brown. Crown blackish striped with white. A black supercilium extending to nape. Chin and throat slate-grey bordered by white malar stripes. Breast and abdomen fulvous tinged with olivaceous.

Distribution : India : Meghalaya (Khasi Hills district) : Assam and Mizoram. Elsewhere : Bangladesh, Burma (Myanmar) and Thailand.

Remarks : Hume (1888, p. 141) obtained this bird from many localities in the Khasi Hills and listed it as *Stachyris nigriceps* Hodgson.

Genus ***Macronous*** Jardine and Selby, 1835

316. ***Macronous gularis rubricapilla*** (Tickell)

1833. *Motacilla rubricapilla* Tickell, *J. Asiat. Soc. Beng.*, 2 : 576 (Borabhum = Barahabhum, Purulia dist., West Bengal).

1971. *Macronous gularis rubricapilla,* Ali and Ripley, vol. 6: 185.

Common name : Yellowbreasted Babbler (English).

Material examined : East Garo Hills district : 2 ♂, Tasek, coll. A. K. Mandal, 6 and 8.xii. 1988; 2 ♀, Williamnagar, A. K. Mandal, 5.xii. 1988. West Garo Hills district : 1 ♀, Tura, coll. W. Koelz, 28.i. 1950. South Garo Hills district : 1 ♂ Baghmara, coll. N. Majumdar, 24.xii. 1988. Jaintia Hills district : 1 ♂ and 2 ♀. Umkiang, coll. A. K. Mandal, 24 and 27.xi. 1988.

Diagnostic characters : Back, greyish oliver; crown with tawny-olive cap. Supercilium pale yellow. Chin, throat and breast pale yellow with dark streaks. Bill slaty. Legs pale brown.

Measurements :	Wing	Tail	Bill [from the skull].
2 ♂	58, 60	48, 52	15(2)
2 ♀	53, 55	45, 48	14(2)

Distribution : India : Meghalaya (East Khasi Hills, South and West Garo Hills and Jaintia Hills districts) : Andhra Pradesh, Assam, Bihar, Karnataka, Madhya Pradesh, Manipur, Nagaland, Orissa, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh and Nepal.

Remarks : Hume (1888, p. 142) reported it from Shillong, the East Khasi Hills Koelz (1951) reported it from Tura, the West Garo Hills and described it as *Macronus gularis assamicus.*

Genus ***Timalia*** Horsfield, 1821

317. ***Timalia pileata bengalensis*** Godwin- Austen

1872. *Timalia bengalensis* Godwin-Austen, *J. Asiat. Soc. Beng.*, 41 : 143 (Khasi Hills, Meghalaya).

1971. *Timalia pileata bengalensis,* Ali and Ripley, vol. 6 : 187.

Common name : Redcapped Babbler (English).

Material examined : Nil.

Diagnostic characters : Back olive-brown slightly streaked on upper back. Crown chestnut. Lores and stout bill black. Tail brown, graduated and narrowly barred. Chin and throat white. Throat with fine black streaks. Belly buff. Vent olive-brown.

Distribution : India : Meghalaya (Khasi Hills districts) : Assam, Manipur, Nagaland, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Hume (1888, p. 143) remarked "Godwin-Austen seems to have got it in the Khasi Hills" Walden (1872) reported it from the "Khasia Hills" and described it as *Timalia jerdoni.*

Genus ***Paradoxornis*** Gould, 1836

318. ***Paradoxornis nipalensis poliotis*** (Blyth)

1851. *Suthora poliotis* Blyth, *J. Asiat. Soc. Beng.*, 20 : 522 (Cherrapoonji, Khasi Hills).

1971. *Paradoxornis nipalensis poliotis,* Ali and Ripley, vol. 6: 203.

Common name : Blyth's or Assam Orange Parrotbill (English).

Material examined : Nil.

Diagnostic characters : Back, wings and tail orange-brown. Crown bright ochraceous. Ear-coverts slaty. Breast pale grey.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Burma (Myanmar), Bhutan and China.

Remarks : The subspecies described from Cherrapunji, the East Khasi Hills.

319. ***Paradoxornis atrosuperciliaris atrosuperciliaris*** (Godwin-Austen)

1897. *Chleuasicus ruficeps* var. *atrosuperciliaris* Godwin-Austen, *Proc. Asiat. Soc. Beng.*, 46 : 147 (Sadiya, Assam).

1971. *Paradoxornis atrosuperciliaris atrosuperciliaris,* Ali and Ripley, vol. 6 : 206.

Common name : Blackbrowed Parrotbill (English).

Material examined : Nil.

Diagnostic characters : Back rufous olive-brown; wings rufous and brown. Tail brown, graduated underparts creamy buff.

Distribution : India : Meghalaya, Arunachal Pradesh and Assam. Elsewhere : Bangladesh, Burma (Myanmar) China and Laos.

Remarks : Ripley (1982, p. 342) recorded it from Meghalaya.

320. ***Paradoxornis ruficeps ruficeps*** Blyth

1842. *Paradoxornis ruficeps* Blyth, *J. Asiat. Soc. Beng.*, 11 : 177 (Bootan).

1971. *Paradoxornis ruficeps ruficeps,* Ali and Ripley, vol.6: 207.

Common name : Greater Redheaded Parrotbill (English).

Material examined : Nil

Diagnostic characters : Back, wing and tail olive-brown. Head deep ferruginous. Underparts whitish tinged with buff on sides of belly.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Sikkim and West Bengal. Elsewhere : Bhutan.

Remarks : Hume (1888, p. 134) collected it from Shillong, and Mouflong, the East Khasi Hills.

321. ***Paradoxornis ruficeps bakeri*** (Hartert)

1900. *Scaeorhynchus ruficeps bakeri* Hartert, *Novit. Zool.*, 7 : 548 (Hungrum, N. Cachar, Assam).

1971. *Paradoxornis ruficeps bakeri,* Ali and Ripley, vol. 6 : 208.

Common name : Assam Redheaded Parrotbill (English).

Material examined : Nil.

Diagnostic characters : Back, wings and tail olive-brown. Crown deep ferruginous. Underparts buff. Oribital skin blue.

Distribution : India : Meghalaya (East Khasi Hills district): Arunachal Pradesh, Assam, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh and Burma.

Remarks : Koelz (1954, p. 2) reported it from "Cherrapunji" the East Khasia Hills and described it as *Psittiparus ruficeps rufitinoctus.*

322. ***Paradoxornis gularis transfluvialis*** (Hartert)

1900. *Scaeorhynchus gularis transfluvialis* Hartert, *Novit. Zool.*, 7 : 584 (Guilang, N. Cachar, Assam).

1971. *Paradoxornis gularis transfluvialis,* Ali and Ripley, vol. 6 : 209.

Common name : Assam Greyheaded Parrotbill (English).

Material examined : Nil.

Diagnostic characters : Back rufous brown. Wings and tail darker. Forehead black, crown dark grey. A black supercilium. Lores and eye-ring white. Underparts white with a black bib.

Distribution : India : Meghalaya : Assam, Manipur and Nagaland. Elsewhere : Bangladesh, Burma (Myanmar) and Thailand.

Remarks : Ripley (1982, p. 343) mentioned its existence in Meghalaya.

323. ***Paradoxornis flavirostris flavirostris*** Gould

1836. *Paradoxornis flavirostris* Gould, *Proc. Zool. Soc. Lond.* : 17 (Nepal).

1971. *Paradoxornis flavirostris flavirostris,* Ali and Ripley, vol. 6 : 210.

Common name : Blackthroated Parrotbill (English).

Material examined : Nil.

Diagnostic characters : Back olive-brown. Wings and tail brown. Crown and nape rufous-chestnut. Ear-coverts black. Cheeks white. Bill yellow, parrot like. Chin black, upper throat barred white and brown; throat deep brown. Abdomen and belly fulvous.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh and Bhutan.

Remarks : Ripley (1982, p. 343) recorded this bird from Meghalaya.

324. ***Paradoxornis guttaticollis*** David

1871. *Paradoxornis guttaticollis* David, *Nouv. Arch. Mus. Paris,* 7 : 14 (Moupin, east Chwanben, China).

1971. *Paradoxornis guttaticollis,* Ali and Ripley, vol. 6 : 212.

Common name : Whitethroated Parrotbill (English).

Material examined : Nil.

Diagnostic characters : Similar to preceding bird, differs from the former in lacking the dark brown throat and having crown and nape rufous-cinnamon; throat pale creamy buff lightly speckled with black.

Distribution : India : Meghalaya (East Khasi Hills district) : Assam and Nagaland. Elsewhere : Bangladesh and extends east to Vietnam.

Remarks : Hume (1888, p. 134) reported this bird from Shillong, the East Khasi Hills and other parts of the Khasi Hills. Gould (1874) also reported it from Shillong, the East Khasi and described it as *Paradoxornis austeni.*

Genus ***Turdoides*** Cretzschmar, 1826

325. ***Turdoides longirostris*** (Hodgson)

1854. *Pyctorhis longirostris* Hodgson, in Horsfield & Moore, *Cat. Bds. Mus., E.I. Co.* I : 408 (Nepal).

1971. *Turdoides longirostris.* Ali and Ripley, vol. 6 : 219.

Common name : Slenderbilled Babbler (English) and Dosru (Garo).

Material examined : Nil.

Diagnostic characters : Head, back and tail deep reddish brown. Lores and cheeks whitish. Ear coverts ferruginous. Bill Black, slender and curved. Chin and upper throat whitish. Lower throat, breast and vent ferruginous becoming albescent. Tail cross barred.

Distribution : India : Meghalaya (East Garo Hills district) : Arunachal Pradesh : Assam, Bihar, Manipur, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Seen this bird near Rongrnggiri, the East Garo Hills.

326. ***Turdoides striatus striatus*** (Dumont)

1823. *Copsychus striatus* Dumont, *Dict. Sci. nat.*, (ed Levrault), 29 : 268 (Bengale = Bengal).

1972. *Turdoides striatus striatus,* Ali and Ripley, vol. 6 : 230.

Common name : Bengal Jungle Babbler (English) and Satbhai (Hindi).

Material examined : West Garo Hills district: 1 ♂ (Juvenile), Kherapara, coll. N. Majumdar, 17.xi. 1988.

Diagnostic characters : Size equal to Myna. Back with dark brown streaked greyish head. Creamy white eyes; yellowish bill and legs. Rump and tail-coverts buff. Tail dark grey brown. Chin and throat grey, streaked with darker bar. Belly, vent and undertail-coverts fulvous.

Distribution : India : Meghalaya (West Garo Hills district): Throughout the Indian mainlands except Arunachal Pradesh. Assam, Manipur, Nagaland, Orissa, Sikkim, Tripura and West Bengal. Elsewhere : Afghanisthan, Pakistan, Iran and Iraq.

Genus ***Garrulax*** Lesson, 1831

327. ***Garrulax monileger monileger*** (Hodgson)

1836. *Cinclosoma monileger* Hodgson, *Asiat. Res.*, 19 : 147 (Nepal).

1972. *Garrulax monileger monileger,* Ali and Ripley, vol. 7 : 6.

Common name : Necklaced Laughing Thrush (English).

Material examined : East Garo Hills district : 2 ♀, Rongrenggiri, coll. H. Khajuria, 21 and 27.i. 1957.

Diagnostic characters : Back olive-brown, underparts fulvous, nuchal collar narrow and light; necklace much narrower on the breast and nearly covered by the rufous of the lower throat. Shoulder olive-brown, concolorous withback. Bill entirely black.

Measurements : 1 ♀: Wing 129, tail 129, bill 30.

Distribution : India : Meghalaya (East Garo Hills and Khasi Hills districts) : Arunachal Pradesh, Assam, Manipur, Nagaland, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Hume (1888, p. 160) recorded it from the Khasi Hills.

328. ***Garrulax pectoralis melanotis*** Blyth

1843. *Garrulax melanotis* Blyth, *J. Asiat. Soc. Beng.*, 12 : 949 (Arracan = Arakan, Burma = Myanmar).

1972. *Garrulax pectoralis melanotis,* Ali and Ripley, vol. 7 : 8.

Common name : Assam Blackgorgeted Laughing Thrush (English).

Material examined : East Garo Hills district : 1 ♀, Anagiri, coll. S. Biswas, 7.xi. 1973; 2 ♀, Songsesk Reserve Forest, coll. S. Biswas, 16.xi. 1973. West Garo Hills district : 1 ♂ Kherapara, coll. N. Majumdar, 18. xi. 1988.

Diagnostic characters : Size larger than the Myna. Back olive-brown; underparts fulvous. Nuchal collar rufous; supercilium extends to collar. Throat whitish buff bordered by a black broad nacklace.

Measurements :	Wing	Tail	Bill
1 ♂	144	128	35
2 ♀	144, 149	125, 135	34, 36

Distribution : India : Meghalaya (East and West Garo Hills and Khasi Hills districts) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and China.

Remarks : Godwin-Austen (1870, p. 104) reported it from the Khasi Hills as *Garrulax pectoralis* Gould.

329. ***Garrulax striatus cranbrooki*** (Kinnear)

1932. *Grammatoptila striata cranbrooki* Kinnear, *Bull. Brit. Orn. Cl.*, 53 : 79 (Adung Valley, Burma =Myanmar).

1972. *Garrulax striatus cranbrooki,* Ali and Ripley, vol. 7 : 13.

Common name : Assam Striated Laughing Thrush (English).

Material examined : NIl.

Diagnostic characters : Back umber-brown with fine white streaks. Crest dark brown. A broad black stripe from eye to nape. Tail chestnut-brown. Throat and sides of head densely streaked. Breast and belly brownish grey with paler streaks. Bill blackish brown.

Distribution : India : Meghlaya : Arunachal Pradesh, Assam and Nagaland. Elsewhere : Bhutan and Burma (Myanmar).

Remarks : Ripley (1982, p. 352) reported it from Meghalaya.

330. ***Garrulax leucolophus leucolophus*** (Hardwicke)

1815. *Corvus leucolophus* Hardwicke, *Trans. Linn. Soc. Lond.*, 11 : 208, pl. 15 (Mts above Hardwar = Haridar, Uttar Pradesh, India).

1972. *Garrulax leucolophus leucolophus,* Ali and Ripley, vol. 7 : 14.

Common name : Himalayan Whitecrested Laughing Thrush (English) and Rawil-Kahy (Hindi).

Material examined : Nil.

Diagnostic characters : Lower back and belly olive-brown. Head with white crest and black band through eye. Tail blackish. Throat and breast bordered by a rufous band.

Distribution : India : Meghlaya (Khasi Hills district) : Arunachal Pradesh, Assam and Sikkim. Elsewhere : Bhutan and Nepal.

Remarks : Hume (1888, p. 153) collected this bird from the Khasi Hills.

331. ***Garrulax leucolophus patkaicus*** Reichenow

1913. *Garrulax patkaicus* Reichenow, *Jour. f. Orn.*, 61 : 557 (Patkai Mountains, Upper Burma = Myanmar).

1972. *Garrulax leucolophus patkaicus,* Ali and Ripley, vol. 7 : 16.

Common name : Assam Whitecrested Laughing Thrush (English).

Material examined : West Garo Hills district : 1 ♂, Kherapara, coll. N. Majumdar, 21.xi. 1988. Ri-Bhoi Hills district : 1 ♂ and 1 ♀ Umran, coll. E. D. Albinus, 22.i. 1981.

Diagnostic characters : Lower back, wing, tail and belly olive-brown. Entire head with crest white and a black band from base of bill through eye to end of head. Lower breast, nuchal collar and pectoral belt chestnut.

Measurements :	Wing	Tail	Bill
2 ♂	129, 130	122, 125	28, 30
1 ♀	124	115	28

Distribution : India : Meghalaya (Ri-Bhoi Hills and West Garo Hills district) : Assam, Manipur and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar).

332. ***Garrulax chinensis nuchalis*** Godwin-Austen

1876. *Garrulax nuchalis* Godwin-Austen, *Ann. Mag. Nat. Hist.*, 18 : 411 (Khasi-Naga Hills, North Bengal = Eastern India).

1972. *Garrulax chinensis nuchalis,* Ali and Ripley, vol. 17 : 17.

Common name : Chestnutbacked Laughing Thrush (English).

Material examined : Nil.

Diagnostic characters : Lowerback, inner edge of wing and tail olive-brown. Outer edge of wing light grey. Tip of tail black. Forehead, lores, eye-ring and a short strip behind eye black. Ear-coverts and sides of neck white. Crown slaty with a few small white feathers infront. Chin and throat black. Breast pale grey belly olive-brown.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Burma. (Myanmar).

Remarks : One of the type locality of this subspecies from the Khasi Hills, Meghalaya.

333. ***Garrulax delesserti gularis*** (McClecIland)

1839. *Ianthocincla gularis* McClelland, *Proc. Zool. Soc. Lond* : 159 (Assam).

1972. *Garrulax delesserti gularis,* Ali and Ripley, vol. 7 : 21.

Common name : Yellowbreasted Laughing Thrush (English).

Material examined : Nil.

Diagnostic characters : Back and wings chiefly olive-brown tinged with rufous. Crown and nape slaty grey. Lores, eye-ring and ear-coverts black. Four outer rectrices rufous. Chin and throat yellow. Bill black. Belly and under tail-coverts rufous.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Vietnam.

Remarks : Ripley (1982, p. 353) recorded it from Meghalaya.

334. ***Garrulax rufogularis rufitinctus*** (Koelz)

1952. *Ianthocincla rufogularis rufitincta* Koelz, *Jour. Zool. Soc. India,* 4 : 37 (Pynursla, Khasia Hills).

1972. *Garrulax rufogularis rufitinctus,* Ali and Ripley, vol. 7 : 28.

Common name : Khasi Rofouschinned Laughing Thrush (English).

Material examined : Nil.

Diagnostic characters : Back umber-brown with half moon shaped black spots. Forehead and centre of crown to nape black. Ear-coverts black. Tail graduated, chestnut brown with a broad black subterminal band. Tip rufous. Chn rufous; throat and breast rusty.

Distribution : India : Meghalay (Khasi Hills district).

Remarks : The type was described from the Khasi Hills.

335. ***Garrulax caerulatus subcaerulatus*** Hume

1878. *Garrulax subcaerulatus* Hume, *Stray Feathers,* 7 : 140 (Shillong).

1972. *Garrulax caerulatus subcaerulatus,* Ali and Ripley, vol. 7 : 34.

Common name : Khasi Hills Greysided Laughing Thrush (English).

Material examined : Nil.

Diagnostic characters : Head, back and tail rich rufous-brown. Forehead black and black round the eye. Chin, throat and breast white; flanks grey. The three outer rectrices broadly tipped with white.

Distribution : India : Meghalaya (East Khasi Hills district).

Remarks : Hume (1878) described this bird from Shillong, the East Khasi Hills.

336. ***Garrulax ruficollis*** (Jardine & Selby)

1838. *Ianthocincla ruficollis* Jardine & Selby, Ill. *Orn,* 2, pl. 21 (Himalayas = Sikkim, India, restricted by Meinertzhagen, 1928, *Ibis* : 515).

1972. *Garrulax ruficollis,* Ali and Ripley, vol. 7 : 36.

Common name : Rufousnecked Laughing Thrush (English).

Material examined : Nil.

Diagnostic characters : Back, rump and lower breast dark olive-brown; a bright rufous patch on the sides of neck and vent. Forehead, chin and throat black. Tail black throughout and graduated.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Ripley (1982, p. 356) recorded it from Meghalaya.

337. ***Garrulax merulinus merulinus*** Blyth

1851. *Garrulax merulinus* Blyth, *J. Asiat. Soc. Beng.,* 20 : 521 (Cherra Punji, Khasia Hills).

1972. *Garrulax merulinus merulinus,* Ali and Ripley, vol. 7 : 37.

Common name : Assam Spottedbreasted Laughing Thrush (English).

Material examined : Nil.

Diagnostic characters : Back, crown and wings dark clive-brown. Supercilium white behind the eye. Throat and breast spotted with dark brown. Centre of belly buff. Vent brown.

Distribution : India : Meghalaya (East Khasi Hills district) : Mizoram.

Remarks : Hume (1888, p. 161) reported several specimens from Mawphlong in the Khasi Hills. Type was described originally from a specimen obtained near Cherrapunjee.

338. ***Garrulax austeni austeni*** (Godwin-Austen)

1870. *Trochalopteron austeni* Godwin-Austen, *J. Asiat. Soc. Beng.*, 39 : 105 (Hengdan Peak, N. Cachar, Assam).

1972. *Garrulax austeni austeni,* Ali and Ripley, vol. 7 : 50.

Common name : Brown capped Laughing Thrush (English).

Material examined : Nil.

Diagnostic characters : Upper back, wings and tail rufous-brown. Underparts rufous-brown barred and mottled with whitish and brown. Wing with a pale wing-bar and pale grey outer edge. Sides of neck finely streaked with white. Tail with white tips.

Distribution : India : Meghalaya : Assam, Manipur, Mizoram and Nagaland.

Remarks : Ripley (1982, p. 359) recorded it from Meghalaya.

339. ***Garrulax squamatus*** (Gould)

1835. *Ianthocincla squamata* Gould, *Proc. Zool. Soc. London* : 48 (Sikkim).

1972. *Garrulax squamatus,* Ali and Ripley, vol. 7 : 51.

Common name : Bluewinged Laughing Thrush (English).

Material examined : Nil.

Diagnostic characters : Back olive-brown with black scaly markings over the whole body. Supercilium black; eye white. Wing black with a rufous-shoulder - patch. Both upper and under tail-coverts chestnut. Blackish tail with rufous terminal band.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bhutan, China, Nepal and Vietnam.

Remarks : Koelz (1952, p. 38) procured it from Pynursla, the Khasi Hills as *Trochalopteron squamatum subsquamatum* Koelz.

340. ***Garrulax erythrocephalus chrysopterus*** (Gould)

1835. *Ianthocincla chrysoptera* Gould, *Proc. Zool. Soc. Lond.* : 48 (Himalayas errore = Khasi Hills).

1972. *Garrulax erythocephalus chrysopterus*, Ali and Ripley, vol. 7 : 61.

Common name : Khasi Redheaded Laughing Thrush (English).

Material examined : Nil.

Diagnostic characters : Back olive-brown with oval lunar spots. Ear-coverts rufous. Back olive-brown. Supercilium grey; chin and throat chestnut. Breast with brown oval spots.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts).

Remarks : Godwin-Austen obtained it from the Hengdon peak. Hume (1888, p. 163) collected a great a numbers from near Shillong "Where it is very abundant"

Blyth (1851) reported it from "Cherra Punji" the East Khasia Hills and described it as *Garrulax ruficapillus.*

341. ***Garrulax phoeniceus bakeri*** (Hartert)

1909. *Trochalopteron phoeniceum bakeri* Hartert, *Bull. Brit. Orn. Cl.*, 33 : 10 (Laisung, North Cachar, Assam).

1971. *Garrulax phoeniceus bakeri,* Ali and Ripley, vol. 7 : 63.

Common name : Assam Crimsonwinged Laughing Thrush (English).

Material examined : East Khasi Hills district : 1 ♀, Insecting Building, Risa Colony, Shillong, coll. E. D. Albinus, 29.ix. 1978.

Diagnostic characters : Back olive-brown. Crown streaked with black. Wings, sids of head and tips of under tail-coverts bright crimson. Supercilium black.

Measurements : 1 ♀ : Wing 83, tail 93, bill 19.

Distribution : India : Meghalaya (East Khasi Hills district) : Assam, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Hume (1888, p. 168) obtained it "from Shillong and the Khasi Hills"

Koelz (1952) reported it from Laitlyngkot, the Khasi Hills and described it as *Trochalopteron phoeniceum.*

Genus ***Leiothrix*** Swainson, 1832

342. ***Leiothrix argentauris argentauris*** (Hodgson)

1837. *Mesia Argentauris* Hodgson, *Ind. Rev.*, 2(2) : 88 (Nepal).

1972. *Leiothrix argentauris argentauris,* Ali and Ripley, vol. 7, p. 65.

Common name : Himalayan Silvereared Mesia (English).

Material examined : Khasi Hills district : 1 unsexed, coll. R. V. Sherard, May/June, 1949. Garo Hills district. 1 ♀, coll. N. A. Belletty, date not known.

Diagnostic characters : In male, back and belly greenish-grey; black crown and moustachial stripe. Ear-coverts silvery. Wings with a crimson patch. Tail-coverts crimson. In female, similar to male; having the under tail coverts ochraceous.

Measurements : 1 ♀, Wing 79, tail 71, bill 18.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Arunachala Pradesh, Bihar, Sikkim and Uttar Pradesh and West Bengal. Elsewhere : Nepal and Bhutan.

Remarks : Godwin-Austen (1870, p. 109) recorded it from the Khasi Hills.

343. ***Leiothrix lutea calipyga*** (Hodgson)

1837. *Bahila Calipyga* Hodgson, *Ind. Rev.*, 2(2) : 88 (Nepal).

1972. *Leiothrix lutea colipyga,* Ali and Ripley, vol. 7 : 68.

Common name : Eastern Redbilled Leiothrix (English).

Material examined : East Khasi Hills district : 2 ♀, Risa colony, Shillong, coll. E. D. Albinus, 2.viii. 1979.

Diagnostic characters : In male, head and back greyish olive. Bill coral-red. Eye-patch yellow. Wing black with small orange patch; yellow and crimson edges. Throat and brest bright yellow. In female, the crimson on wing replaced by yellow.

Measurements : 2 ♀ : Wing 68, 70; tail 58, 60; bill 14, 15.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland Sikkim and West Bengal. Elsewhere : Nepal, Bhutan and Burma (Myanmar).

Remarks : Hume (1888, p. 247) reported it from Shillong, the East Khasi Hills and other places of the Khasi Hills as *Liothrix lutens* Scopoli. Koelz (1952) reported this bird from Mawryngkneng, the Khasi Hills and described it *Leothrix lutea luteola.*

Genus ***Pteruthius*** Swainson, 1832

344. ***Pteruthius flaviscapis validirostris*** Koelz

1951. *Pteruthius erythropterus validirostris* Koelz. *Jour. Zool. Soc. India,* 3 : 28 (Kohima, Naga Hills,Assam).

1972. *Pteruthius flaviscapis validirostris,* Ali and Ripley, vol. 7 : 74.

Common name : Redwinged Shrike Babbler (English).

Material examined : Nil.

Diagnostic characters : In male, black ashy-grey; head black with a white post-occular stripe. Wings black tipped with white; the inner secondaries chestnut. Tail black. Chin and throat pale ashy; abdomen and vent vinous-brown. In female, back brownish grey, head grey. Outer edge of folded wing yellowish-green, tipped white. Central rectrices green; outer blackish tipped yellow.

Distribution : India : Meghalaya (Khasi Hills and West Garo Hills districts) : Northern India from Arunachal Pradesh to Jammu & Kashmir, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Pakistan.

Remarks : Hume (1888, p. 243) reported it from the Khasi Hills as *Pteruthius erythropterus* Vigors. Koelz (1952) recorded this bird from the Tura Mountain, the West Garo Hills and described it as *Pteruthius erythropterus nocrecus.*

345. ***Pteruthius melanotis melanotis*** Hodgson

1847. *Pteruthius melanotis* Hodgson, *J. Asiat. Soc. Beng.*, 16 : 448 (Terai, southeast Himalayas = Nepal vide Gadow, 1883, *Cat., Bds. Brit. Mus.*, 8 : 118).

1972. *Pteruthius melanotis melanotis,* Ali and Ripley, vol. 7 : 79.

Common name : Chestnut-throated Shrike Babbler (English).

Material examined : Nil.

Diagnostic characters : In male, back olive-green with yellow forehead. Nuchal collar grey. Supercilium grey. Eye with white eyering.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar),Nepal, Thailand and Vietnam.

Remarks : Hume (1888, p. 244) reported it from Shillong, the East Khasi Hills and listed it as *Allotrius melanotis* Hodgson. Baker (1907, p 789) recorded it from the Khasi Hills.

346. ***Pteruthius aenobarbus aenobarbulus*** Koelz

1954. *Pteruthius aenobarbus aenobarbulus* Koelz, *Contrib. Inst. Regional exploration,* No. 1 : 9 (Nokrek, Garo Hills).

1972. *Pteruthius aenobarbus aenobarbulus,* Ali and Ripley, vol. 7 : 80.

Common name : Chestnut fronted Shrike-Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, tail and crown olive-green. Forehead, chin and throat deep chestnut. Breast. Belly and vent yellow. Supercilium greyish white. Ear-coverts yellow. Outer rectrices black, tips white.

Distribution India ; Meghalaya (Garo Hills district).

Remarks : Type recorded from the Garo Hills district.

Genus ***Gampsorhynchus*** Blyth, 1844

347. ***Gampsorhynchus rufulus rufulus*** Blyth

1844. *Gampsorhynchus rufulus* Blyth, *J. Asiat. Soc. Beng.,* 13(1) : 371 (Darjeeling = Darjiling, Darjiling dist. West Bengal, India).

1972. *Gampsorhynchus rufulus rufulus,* Ali and Ripley, vol. :. 81.

Common name : Whiteheaded Shrike-Babbler (English).

Material examined : Ri-Bhoi Hills district : 1 ♀, Nongpoh, coll. R. V. Sherard, 8.v. 1949.

Diagnostic characters : Back and wing olive-brown. Entire head, nape and belly whitish buff. Throat and breast white. Tal graduated and tipped with buff.

Measurements : 1 ♀ : Wing 96, tail 114, bill 25.

Distribution : India : Meghalaya (Garo Hills and Ri-Bhoi Hills districts) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Nepal, Bhutan, Bangladesh and Burma (Myanmar).

Remarks : Godwin-Austen (1872, p. 269) recorded it from the Garo Hills.

Genus ***Actinodura*** Gould, 1836

348. ***Actinodura egertoni Khasiana*** Godwin-Austen

1876. *Actinodura Khasiana* Godwin-Austen, *J. Asiat. Soc. Beng.,* 45 : 76 (Khasia Hills).

1972. *Actinodura egertoni khasiana,* Ali and Ripley, vol. 7 : 85.

Common name : Assam Barwing (English).

Material examined : Nil.

Diagnostic characters : Back, rump and tail-coverts ochraceous. Crown browner, less contrasting with mouth. Forehead pale rufous. Barring on central rectrices.

Distribution : India : Meghalaya (East Khasi Hills district) : Assam, Manipur and Nagaland.

Remarks : Hume (1888, p. 171) recorded it from "Shillong and the Khasi Hills" and listed it as *Actinodura egertoni* Gould

Genus ***Minla*** Hodgson, 1837

349. ***Minla strigula strigula*** (Hodgson)

1837. *Siva Strigula* Hodgson, *Ind. Rev.*, 2(2) : 89 (Nepal).

1972. *Mina strigula strigula,* Ali and Ripley, vol. 7 : 92.

Common name : Eastern Barthroated Siva (English).

Material examined : Nil.

Diagnostic characters : Back greyish-olive. Crown with orange-brown tufted. Black crescents on the feathers of the whitish throat. Black post-ocular stripe. Tail chestnut and black with yellow tips. Wing with orange band. Ear-covert grey.

Distribution : India : Meghalaya (Khasi Hills district): Sikkim and West Bengal. Elsewhere : Bhutan and Nepal.

Remarks : Godwin-Austen (1870.p.109) procured it from the Khasi Hills. Baker (1907, p. 788) reported it from the Khasi Hills.

350. ***Minla strigula cinereigenae*** (Ripley)

1952. *Siva strigula cinereigenae* Ripley, *J. Bombay nat. Hist. Soc.*, 50 : 500 (Mt. Japvo, Western Naga Hills, Assam).

1972. *Minla strigula cinereigenae,* Ali and Ripley, vol. 7 : 95.

Common name : Assam Barthroated Sive (English).

Material examined : Nil.

Diagnostic characters : Back olive-brownish. Crown brownish orange. Tail black, partly chestnut on the basal half. Eye-ring, supercilium and cheeks greyish. Chin orange; throat whitish narrowly barred with black. A black malar stripe.

Distribution : India : Meghalaya : Assam, Manipur and Nagaland.

Remarks : Ripley (1982, p. 370) recorded it from Meghalaya.

351. ***Minla cyanouroptera cyanouroptera*** (Hodgson)

1837. *Siva Cyanouroptera* Hodgson, *Ind. Rev.*, 2 (2) : 88 (Nepal).

1972. *Minla cyanouroptera cyanouroptera* Ali and Ripley, vol. 7 : 95.

Common name : Bluewinged Siva (English).

Material examined : Nil.

Diagnostic characters : Back fulvous; rump paler. Tufted crown dark blue. Supercilium white. Tail long, dark grey with blue edges, tipped with white.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Bihar, Manipur, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Nepal, Bhutan and Burma (Myanmar).

Remarks : Hume (1888, p. 248) reported it from the Khasi Hills and listed it as *Siva cyanouroptera* Hodgson

Genus ***Yuhina*** Hodgson, 1836

352. ***Yuhina castaniceps castaniceps*** (Moore)

1854. *Ixulus castaniceps* Moore, in Horsfield & Moore, *Cat. Bds. Mus., E. I. Co.* 1 : 411 (Afghanistan, errore = Cachar).

1972. *Yuhina castaniceps castaniceps,* Ali and Ripley, vol. 7 : 99.

Common name : Chestnut-headed Yuhina (English).

Material examined : Nil.

Diagnostic characters : Back and wings grey-brown. Trail dark brown with white tips of outer rectrices. Crown rufous-brown scalloped with pale grey on forehead. Below, greyish white. Ear-coverts rufous-brown, a narrow white supercilium.

Distribution : India : Meghalaya (East Khasi Hills and West Garo Hills districts) : Assam, Manipur and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Hume (1888, p. 251) reported this form from both the Garo-Hills and several localities in the Khasi Hills and listed it as *Staphidea castaneiceps* Moore. Godwin-Austen (1870, p 109) also recorded it from the Garo and Khasi Hills. Koelz (1954) reported it from Mawphlang, the East Khasi Hills and described it as *Siva cyanouptera thalia* and from Nokrek, the West Garo Hills he described it as *Siva cyanouroptera rama.* Baker (1907, p. 788) recorded it from the Khasi Hills.

353. ***Yuhina bakeri*** Rothschild

1926. *Yuhina bakeri* Rothschild, *Novit. Zool.,* 33 : 276, New name for Siva occipitalis Blyth, 1844, preoccupied (Darjeeling = Darjiling, Darjiling dist., West Bengal, India).

1972. *Yuhina bakeri,* Ali and Ripley, vol. 7 : 100.

Common name : Whitenaped Yuhina (English).

Material examined : Nil.

Diagnostic characters : Lower back olive-brown with inconspicuous white shaft-streaks. Head, uper back and sides of neck rusty brown; crest posteriorly white. Throat white. Breast vinaceous, with dark streaks. Undertail-coverts ferruginous.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur and Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Hume (1888, p.249) reported it from Shillong, the East Khasi Hills and other places in the Khasi Hills. and listed it as *Minla castaneiceps* Hodgson.

354. ***Yuhina flavicollis flavicollis*** Hodgson

1836. *Yuhina ? flavicollis* Hodgson, *Asiat. Res.*, 19 : 167 (Nepal, restricted to central Nepal by Ripley, 1961, *Synopsis* 1st ed. : 408).

1972. *Yuhina flavicollis flavicollis,* Ali and Ripley, vol. 7 : 102.

Common name : Eastern Yellownaped Yuhina (English).

Material examined : Nil.

Diagnostic characters : Back olive-brown; crested head chocolate-brown. Nuchal collar rusty yellow. Chin white, throat white with dark streaks. Vent and undertail-coverts buff.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Sikkim and West Bengal. Elsewhere : Bhutan and Nepal.

Remarks : Baker (1907, p. 789) recorded this bird from the Khasi Hills and listed it as *Ixulus flavicollis* Hodgson.

355. ***Yuhina flavicollis rouxi*** (Oustalet)

1896. *Ixulus rouxi* Oustalet, *Bull. Mus. d'Hist. Nat. Paris,* 2 : 184, 186 (Ly-Sien-Kiang or Black River, Yunnan)

1972. *Yuhina flavicollis rouxi,* Ali and Ripley, vol. 7 : 103.

Common name : Assam Yellownaped Yuhina (English).

Material examined : Nil.

Diagnostic characters : Back olive-bowrn; crested head chocolate-brown. A white eye-ring. Malar stripe dark brown, nuchal collar rusty yellow. Chin and throat white. The later with fine dark streaks. Vent and under tail-coverts buff.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh.

Remarks : Ripley (1982, p. 372) reported it from Meghalaya.

356. ***Yuhina occipitalis occipitalis*** Hodgson

1836. *Yuhina occipitalis* Hodgson, *Asiat. Res.*, 19 : 166 (Nepal).

1972. *Yuhina occipitalis occipitalis,* Ali and Ripley, vol. 7 : 106.

Common name : Rufousvented Yuhina (English).

Material examined : Nil.

Diagnostic characters : Head grey with a erectile crest infront, bright rufous posteriorly. A black malar stripe. Throat and breast vinaceous; belly and under tail-coverts pale rufous.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Sikkim and West Bengal. Elsewhere : Bhutan, Nepal, and Tibet.

Remarks : Hume (1888, p. 251) reported it from Shillong, the East Khasi Hills and listed it as *Ixulus occipitalis* Blyth.

357. ***Yuhina nigrimenta nigrimenta*** Hodgson

1845. *Yuhina nigrimenta* Hodgson in Blyth, *J. Asiat. Soc. Beng.*, 14 : 562 (Nepal).

1972. *Yuhina nigrimenta nigrimenta,* Ali and Ripley, vol. 7 : 107.

Common name : Blackchinned Yuhina (English).

Material examined : Nil.

Diagnostic characters : Upper back, wings and tail olive-brown. Head with erectile black crest with scale-like grey edgings. Lores black. Nape and sides of head grey. Chin black ; throat white; breast and abdomen pale fulvous.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, China and Vietnam.

Remarks : Ripley (1982, p. 374) reported it from Meghalaya.

358. ***Yuhina xantholeuca xantholeuca*** (Hodgson)

1844. *Erp.* [Ornis] *zantholeuca* [Sic] Hodgson in Blyth, *J. Asiat. Soc. Beng.*, 13 : 380 (Central region of Nepal).

1972. *Yuhina xantholeuca xantholeuca,* Ali and Ripley, vol. 7 : 108.

Common name : Whitebellied Yuhina (English).

Material examined : Nil.

Diagnostic characters : Head, back, wings and tail olive-green. Head tufted. Ear-coverts greyish white. Edges of tail yellow. Under tail-coverts yellow.

Distribution : India : Meghalya : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Thailand.

Remarks : Ripley (1982, p. 374) recorded it from Meghalaya.

Genus ***Alcippe*** Blyth, 1844

359. ***Alcippe cinerea*** (Blyth)

1847. *Minla cinerea* Blyth, *J. Asiat. Soc. Beng.*, 16 : 449 (Darjeeling,= Darjiling, Darjiling dist., West Bengal, India).

1972. *Alcippe cinerea,* Ali and Ripley, vol. 7 : 112.

Common name : Dusky Green Tit-Babbler (English).

Material examined : Nil.

Diagnostic characters : Back, tail and wings greyish olive. Crown and nape yellowish green, the feathers edged with black. Black stripe on sides of crown. A yellow supercilium from lores to nape and another black stripe from lores through eye.

Distribution : India : Meghalaya (Khasi Hills district) : Arunchal Pradesh, Assam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma, (Myanmar), Nepal Thailand and Vietnam.

Remarks : Godwin-Austen (1870, p. 109) reported it from the Khasi Hills and listed it as *Minla cinerea* Blyth.

Remarks : Koelz (1954) reported this bird at the edge of the Garo-Khasi foothills.

Genus ***Bradypterus*** Swainson, 1837

402. ***Bradypterus luteoventris luteoventris*** (Hodgson)

1845. *Tribura luteoventris* Hodgson, *Proc. Zool. Soc. Lond.* : 30 (Nepal).

1973. *Bradypterus luteoventris luteoventris,* Ali and Ripley, vol. 8 : 25.

Common name : Brown Bush Warbler (English).

Material examined : Nil.

Diagnostic characters : Back, tail and wings rufous-brown. Short supercilium and eye-ring pale. Chin, throat, breast and belly white tinged with buff on sides. Throat sometimes with the fine dark specks. Under tail-coverts rufous-brown.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Nagaland and Sikkim. Elsewhere : Bhutan, China, Nepal and Vietnam.

Remarks : Hume (1888, p. 205) reported this bird "from Shillong and Khasi Hills" and listed it as *Tribura luteiventris* Hodgson.

Genus ***Cisticola*** Kaup, 1829

403. ***Cisticola juncidis cursitans*** (Franklin).

1831. *Prinia cursitans* Franklin, *Proc. Zool. Soc. Lond.* : 118 (between Calcutta and Benares).

1973. *Cisticola juncidis cursitans,* Ali and Ripley, vol. 8 : 33.

Common name : Streaked Fantail Warbler (English) and Ghaski-pitpiti (Hindi).

Material examined! : Nil.

Diagnostic characters : Back rufous-brown boldly streaked with black; a prominent whith supercilium. Tail graduated with white-tipped fan-shaped. Chin and throat white; upper breast buff, darker on flanks.

Distribution : India : Meghalaya (Khasi Hills district) : Throughout the Indian Union except Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh, Pakistan and Sri Lanka.

Remarks : Hume (1888, p. 211) recorded it from the Khasi Hills.

Genus ***Prinia*** Horsfield, 1821

404. ***Prinia hodgsonii rufula*** Godwin-Austen

1874. *Prinia rufula* Godwin-Austen, *Proc. Zool. Soc. Lond.* : 47 (Naga Hills).

1973. *Prinia hodgsonii rufula,* Ali and Ripley, vol. 8 : 40.

Common name : Northern Ashy-grey Wren-Warbler (English).

Material examined : Nil.

Diagnostic characters : Entire plumage on head, back, wings rufous-brown. Tail longish, grey tipped with black-and-white. In summer, a cloudy grey band across the breast.

Distribution : India : Meghalaya (East Khasi Hills district) ; Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), Nepal, and Pakistan.

Remarks : Hume (1888, p. 208) remarked "have lots of *hodgsoni* from Shillong and the East Khasi Hills" and listed it as *Prinia hodgsoni* Blyth.

405. ***Prinia subflava inornata*** Sykes

1832. *Prinia inornata* Sykes, *Proc. Zool. Soc. Lond. :* 89 (Dukhun = Deccan, India).

1973. *Prinia subflava inornata,* Ali and Ripley, vol. 8 : 53.

Common name : Central India Plain Wern-Warbler (English).

Material examined : Nil.

Diagnostic characters : Wings warm rufous-brown. Head, sides of neck and back dark ashy-grey. Lores white. Graduated tail with fulvous tips and blackish subterminal spots. Throat whitish buff.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Manipur, Sikkim and West Bengal.. Elsewhere : Bangladesh and Bhutan.

Remarks : Hume (1888, p. 215) reported that Godwin-Austen obtained this bird from the Khasi Hills and listed it as *Drymoeca inornata* Sykes.

406. ***Prinia socialis inglisi*** Whistler & Kinnear

1933. *Prinia socialis inglisi* Whistler & Kinnear, *J. Bombay nat. Hist. Soc.,* 36 : 574 (Bhutan Duars).

1973. *Prinia socialis inglisi,* Ali and Ripley, vol. 8 : 59.

Common name : Assam Ashy Wren-Warbler (English).

Material examined : Nil.

Diagnostic characters : Back, wing and tail rufous brown. Head, sides of neck and upper back ashy-grey. Lores white. Tail graduated with fulvous tips and blackish subterminal spots. Chin and throat whitish buff; breast and belly washed with ochraceous.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh and Bhutan.

Remarks : Hume (1888, p. 208) collected this species "only from Shillong" the East Khasi Hills.

407. ***Prinia criniger catharia*** Reichenow

1908. *Prinia catharia* Reichenow, *Orn. Monatsb.*, 16 : 13 (Ta-tsieng-lu-ting, Setschuan).

1973. *Prinia criniger catharia,* Ali and Ripley, vol. 8 : 71.

Common name : Assam Brown Hill Warbler (English).

Material examined : Nil.

Diagnostic characters : Back, head and tail brown with distinctly streaked. Tail graduated. Very long. Tip of the rectrices buff and a subterminal dusky spot. Tail narrowly cross-barred. Throat pale fulvous. Breast olive-brown.

Distribution : India : Meghalaya (East Khasia Hills district) : Assam, Manipur and Nagaland. Elsewhere : Bangladesh, Burma (Myanmar) and China.

Remarks : Hume (1888, p. 215) recorded this bird from Shillong, the East Khasi Hills and listed it as *Suya crinigera* Hodgson. Baker (1924) reported it from Shillong the East Khasi Hills and described it as *Suya crinigera assamica.* Koelz (1952) also reported it from Cherrapunji, the Khasi Hills and described it as *Surya crinigera nebulosa.*

408. ***Prinia atrogularis khasiana*** (Godwin-Austen)

1876. *Suya khasiana* Godwin-Austen, *Ann. Mag. Nat. Hist.,* 18 : 412 (Khasia Hills).

1973. *Prinia atrogularis khasiana,* Ali and Ripley, vol. 8 : 73.

Common name : Assam Blackthroated Hill Warbler (English).

Material examined : Nil.

Diagnostic characters : Back, dark olive-brown. Wings and tail rufous-brown. Tail graduated very long, paler at tip. Chin and throat black, bordered with white moustachial stripes. Breast with white and black spot. Abdomen fulvous; vent more olive.

Distribution : India : Meghalaya (Khasi Hills district): Manipur and Nagaland. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Godwin-Austen (1876) described this bird from the Khasi Hills. Hume (1888, p. 217) noticed this bird in the Khasi Hills and listed it as *Suya khasiana* Godwin-Austen.

Genus ***Orthotomus*** Horsfield, 1821

409. ***Orthotomus sutorius patia*** Hodgson

1845. *Orthotomus patia* Hodgson, *Proc. Zool. Soc. Lond. :* 29 (Nepal, restricted to Katmandu by Ripley, 1950, JBNHS, 49 : 402.

1973. *Orthotomus sutorius patia,* Ali and Ripley, vol. 8 : 84.

Common name : Bengal Tailor Bird (English) and Dopinchep (Garo).

Material examined : East Garo Hills district : 1 ♂, Rongrenggiri 4 km. E. of williamnagar, coll. N. Majumdar, 2.xii. 1988.

Diagnostic characters : Size equal to Sparrow. Back yellow-green. Underparts whitish buff. Crown rust-coloured. Tail long and middle feather pointed.

Measurements : 1 ♂ : Wing 47, tail 50, bill 17.

Distribution : India : Meghalaya (East Garo Hills and Khasi Hills districts) : Assam, Bihar, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Hume (1888, p. 206) reported it from the Garo and Khasi Hills.

410. ***Orthotomus atrogularis nitidus*** Hume

1874. *Orthotomus nitidus* Hume, *Stray Feathers,* 2 : 478. 507 (Pahpoon, Tenasserim, Burma = Myanmar).

1973. *Orthotomus atrogularis nitidus,* Ali and Ripley, vol. 8 : 86.

Common name : Blacknecked Tailor Bird (English).

Material examined : Nil.

Diagnostic characters : In male, head chestnut; wings and back olive-green. Cheeks and chin whitish grey; throat black. Sides of breast grey : belly whitish. Abdomen greenish yellow; under-tail-coverts yellow. In female, similar to male excepting the throat lacks black.

Distribution : India : Meghalaya (Garo Hills district) : Assam, Nagaland, Sikkim, and West Bengal. Elsewhere : Bangladesh.

Remarks : Godwin-Austen (1870, p. 107) reported it from Shushang at the base of the Garo Hills as *Orthotomus atrigularis.*

411. ***Orthotomus cucullatus coronatus*** Blyth

1861. *Orthotomus coronatus* Blyth, *Proc. Zool. Soc. Lond.* : 200 (Sikkim).

1973. *Orthotomus cucullatus coronatus,* Ali and Ripley, vol. 8 : 87.

Common name : Goldenheaded Tailor Bird (English).

Diagnostic characters : Back, wings and tail olive-green. Rump yellow. Forehead and crown rufous. A short supercilium yellow. Lores, sides of head and a nuchal collar dark grey. Chin, throat and breast greyish white. Abdomen and vent bright yellow.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh and Nepal.

Remarks : Godwin-Austen (1870, p. 107) recorded it from Cherrapoonjee, the East Khasi Hills.

Genus ***Locustella*** Kaup, 1829

412. ***Locustella certhiola rubescens*** Blyth

1845. *Locustella rubescens* Blyth, *J. Asiat. Soc. Beng.,* 14 : 582 (near Calcutta, West Bengal, India).

1973. *Locustella certhiola rubescens,* Ali and Ripley, vol. 8 : 89.

Common name : Pallas's Siberian Grasshopper Warbler (English).

Material examined : Nil.

Diagnostic characters : Back and tail olive-brown with dark brown steaks. Supercilium narrow and pale. Underparts pale brown on breast and belly. Undertail-coverts buff.

Distribution : India : Meghalaya : Andaman Islands, Assam, Kerala and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), Indochinese countries, Indonesia, Malaysia, Nepal and Sri Lanka.

Remarks : Ripley (1982, p.419) mentioned its existence in Meghalaya.

413. ***Locustella naevia straminea*** Seebohm

1881. *Locustella straminea* Seebohm, *Cat. Bds. Brit. Mus.,* 5 : 117, ex Severtzov, 1872, *nom. nud.* (Turkestan).

1973. *Locustella naevia straminea,* Ali and Ripley, vol. 8 : 91.

Common name : Eastern Grasshopper Warbler (English).

Material examined : Nil.

Diagnostic characters : Upper parts, pale olive-brown with broad, dark brown streaks. Supercilium narrow and pale. Chin and throat whitish, breast buff. Under tail-coverts very long, whitish with broad brown shaft - streaks.

Distribution : India : Meghalaya (East Khasi Hills district): Throughout the Indian Subcontinent. Elsewhere : Bangladesh and Pakistan.

Remarks : Godwin-Austen recorded this bird from Cherrapunje, the East Khasi Hills.

414. ***Chaetornis striatus*** (Jerdon)

1841. *Megalurus ? striatus* Jerdon, *Suppl. Cat. Bds.* : 88 (Nilgiris).

1973. *Chaetornis striatus,* Ali and Ripley, vol. 8 : 94.

Common name : Bristled Grass Warbler (English).

Material examined : Nil.

Diagnostic characters : Back fulvous-brown boldly streaked with black; wing fulvous-brown; tail graduated, tipped with whitish. Throat, breast and belly cream-buff.

Distribution : India : Meghalaya (Garo Hills district) : Throughout the Indian mainland except Arunachal Pradesh. Himachal Pradesh, Jammu & Kashmir, Kerala and Manipur.

Remarks : Godwin-Austen (1870, p. 270) procured it from the Garo Hills.

Genus ***Megalurus*** Horsfield, 1821

415. ***Megalurus palustris toklao*** (Blyth)

1843. *Turdus toklao* Blyth, *J. Asiat. Soc. Beng.*, 12 : 179 (calcutta, Calcutta dist., West Bengal, India). ex. 1842 *J. Asiat. Soc. Beng.*, 11 : 603.

1973. *Megalurus palustris toklao,* Ali and Ripley, vol. 87 : 96.

Common name : Striated Marsh Warbler (English).

Material examined : Nil.

Diagnostic characters : Size larger than the Bulbul. Back and wings fulvous-brown with broad black stripes; underparts whitish, tinged with fulvous and finely brown streaked on breast, flanks and under-tail-coverts. Tail long, pointed and graduated. Supercilium white.

Distribution : India : Meghalaya (South Garo Hills district) : Arunachal Pradesh, Assam, Bihar, Haryana, Madhya Pradesh, Manipur, Nagaland, Orissa, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Indochinese countries, Indonesian Islands, Nepal, Pakistan, Philippines and Thailand.

Remarks : Observed it near Baghmara, the West Garo Hills.

Genus ***Phragamaticola*** Jerdon, 1845

416. ***Phragamaticola aedon aedon*** (Pallas)

1716. *Muscicapa Aedon* Pallas, *Reise Russ. Reichs,* 3 : 695 (Dauria).

1973. *Phragamaticola aedon aedon,* Ali and Ripley, vol. 8 : 98.

Common name : Thickbilled Warbler (English).

Material examined : Nil.

Diagnostic characters : Head, back and tail fulvous olive brown, underparts fulvous white. First primary being longer than the primary -coverts. Tail feathers narrow and steeply graduated.

Distribution : India : Meghalaya (Khasi Hills district) : Andhra Pradesh, Assam, Gujarat, Karnataka, Kerala, Maharashtra, Nicobar Islands, Orissa. Elsewhere : Bhutan, Burma (Myanmar), Indochinese countries and Malay peninsula.

Breeds in southern Siberia from the Ob river to northeastern China and Japan.

Remarks : Hume (1888, p. 202) reported this bird from the Khasi Hills and mentioned it as *Arundinax aedon* Pall.

Genus ***Phylloscopus*** Boie, 1826

417. ***Phylloscopus affinis affinis*** (Tickell)

1833. *Motacilla affinis* [Sic] Tickell, *J. Asiat. Soc. Beng.,* 2 : 576 (Borabhum =Barahabhum, Puruliya district, West Bengal and Dholbhum=Dhalbhum, Singhbhum district, Bihar, India).

1973. *Phylloscopus affinis affinis,* Ali and Ripley, vol. 8 : 142.

Common name : Tickell's Leaf Warbler (English).

Material examined : Nil.

Diagnostic charactgers : Head, back and tail dark olive-brown; distinct long and yellow supercilium; underparts bright yellow.

Distribution : India : Meghalaya (East Khasi Hills district) : Throughout the Indian mainlands except Gujarat, Mizoram, Nagaland and Rajasthan. Elsewhere : Bangladesh, Bhutan, Burma(Myanmar), Nepal, Pakistan, Thailand and Tibet.

Remarks : Godwin-Austen (1870, p. 107) noted it from the Khasi Hills. Hume (1888, p. 219) reported it from Shillong, the East Khasi Hills.)

418. ***Phylloscopus fuscatus fuscatus*** (Blyth)

1842. *Phyllopneuste fuscata* Blyth, *J. Asiat. soc. Beng.,* 11 : 113(neighbourhood of Calcutta).

1973. *Phyllloscopus fuscatus fuscatus,* Ali and Ripley, vol. 8 : 149.

Common name : Siberian Dusky Leaf Warbler (English).

Material examined : Nil.

Diagnostic characters : Head, back and tail dusky olive-brown; a dark streak through eye. Supercilia fulous. Chin and throat whitish, with a grey wash on breast. Flanks and undertail-coverts fulvous.

Distribution : India : Meghalaya (Khasi Hills district) : The Andaman Islands, Assam, Bihar, Uttar Pradesh and West Bengal.Elsewhere : Bangladesh, Bhutan, Burma(Myanmar), China, Indochinese countries, Nepal and Tibet.

Remarks : Hume (1888, p. 217) collected it "from Shillong, and other places in the Khasi Hills"

419. ***Phylloscopus pulcher pulcher*** Blyth

1845. *Ph. (ylloscopus) pulcher* Blyth, *J. Asiat. soc. Beng.*, 14 : 592 (restricted to Ilam dist., E. Nepal, by Ripley,*JBNHS*, 49 : 401, rerestricted to Nepal valley by Biswas, 1962, *JBNHS*, 59 : 413, 414).

1973. *Phylloscopus pulcher pulcher,* Ali and Ripley, vol. 8 : 152.

Common name : Eastern Orangebarred Leaf Warbler (English).

Material examined : Nil.

Diagnostic characters : Back olive; rump pale yellow; crown shooty olive. Supercilium yellow, extending to nape. Inner webs of outer rectrices white. Underparts pale yellow; breast suffused with grey.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Burma (Myanmar), Bhutan, China and Nepal.

Remarks : Hume (1888, p. 223) recorded this bird from Shillong, the East Khasi Hills and listed it as *Reguloides erochrous* Hodgson.

420. ***Phylloscopus inornatus mandellii*** (Brooks)

1879. *Reguloides Mandellii* Brooks, *Stray. Feathers,* 8 : 389 (Sikkim).

1973. *Phylloscopus inornatus mandellii,* Ali and Ripley, vol. 8 : 155.

Common name : Mandelli's Yellowbrowed Leaf Warbler (English).

Material examined : Nil.

Diagonstic characters : The upperparts darker and browner; rump greenish. Supercilium and underparts dirty yellowish white. Centre of belly more yellowish. Upper wing-bars buffish and less distinct.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Burma(Myanmar), China and Tibet.

Remarks : Hume (1888, p. 205) reported this bird from Shillong, the East Khasi Hills as *Schoenicola mandellii* Brooks.

421. ***Phylloscopus inornatus inornatus*** (Blyth)

1842. *Regulus inornatus* Blyth, *J. Asiat. Soc. Beng.*, 11 : 191 (Darjeeling = Darjiling, Darjiling dist., West Bengal, India).

1973. *Phylloscopus inornatus inornatus,* Ali and Ripley, vol. 8 : 156.

Common name : Siberian Yellowbrowed Leaf Warbler (English).

Material examined : South Garo Hills district : 2♂ and 1♀, Baghmara, c 100 km. South West of Tura, coll. N. Majumdar, 20 and 23 xi. 1988.

Diagnostic characters : Wings and tail brown edged with greenish two white bars on wings; entire lower plumage sultied white.

Measurements :	Wing	Tail	Bill
2♂	54, 57	40, 41	11(2)
1♀	56	41	11

Distribution : India : Meghalaya (South Garo Hills district) : Assam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, China, Indochinese countries and Taiwan.

Breeds in Siberia.

422. ***Phylloscopus proregulus newtoni*** Gatke

1889. *Phylloscopus newtoni* Gatke, *Ibis* : 579 (India = Darjeeling=Darjiling, Darjiling dist., West Bengal).

1973. *Phylloscopus proregulus newtoni,* Ali and Ripley, vol. 8 : 160.

Common name : Eastern Pallas's Leaf Warbler (English).

Material examined : Nil.

Diagnostic characters : Back olive-green. Two yellow wing-bars. A dusky olive-coronal band on either side of a prominent pale yellow medium stripe. supercilium conspicuous, long and yellow. A dark streak through eye. A pale yellow rump-band prominent. Underparts dull white tinged with yellow.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma((Myanmar), China and Vietnam.

Remarks : Hume (1888, p. 222) remarked "in the Khasi Hills, it must be fairly common." He listed this bird as *Reguloides proregulus* Pallas.

423. ***Phylloscopus magnirostris*** Blyth

1843. *Ph. (ylloscopus) magnirostris* Blyth, *J. Asiat. Soc. Beng.,* 12 : 966 (Calcutta, Calcutta dist., West Bengal, India).

1973. *Phylloscopus magnirostris,* Ali and Ripley, vol. 8 : 164.

Common name : Largebilled Leaf Warbler (English).

Material examined : Nil.

Diagnostic characters : Head and back brownish olive. Supercilium yellowish, dark streak through eye. Underparts yellowish white sullied with grey on breast and throat.

Distribution : India : Meghalaya (East Khasi Hills district) : Throughout the Indian Union except Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Lakshadweep, Nagaland, Orissa, Punjab, Rajasthan and Tripura. Elsewhere : Bhutan, Burma(Myanmar), Indochinese countries, Nepal and Pakistan.

Remarks : Hume (1888, p. 218) obtained it from Shillong, the East Khasi Hills.

424. ***Phylloscopus trochiloides viridanus*** Blyth

1843. *Phylloscopus viridanus* Blyth, *J. Asiat. Soc. Beng.*, 12 : 967 (Calcutta, Calcutta dist., West Bengal, India).

1973. *Phylloscopus trochiloides viridanus*, Ali and Ripley, vol. 8 : 166.

Common name : Western Greenish Leaf Warbler (English).

Material examined : Nil.

Diagnostic characters : Back, wing and tail dull green. Chin, throat, breast and belly yellowish white. Wing with single pale wing-bar. A pale dark streak through eye.

Distribution : India : Meghalaya (South Garo Hills district) : Throughout the Indian Mainland except Rajasthan. Elsewhere : Bangladesh, Pakistan, Nepal, Sri Lanka, Burma and Indochinese countries.

Remarks : Seen it near Baghmara, the South Garo Hills.

425. ***Phylloscopus trochiloides trochiloides*** (Sundevall)

1838. *Acanthiza trochiloides* Sundevall, *Fysiogr. Sallskap. Tidskr. Lund*, 1 : 76 (Calcutta, Calcutta dist., West Bengal, India).

1973. *Phylloscopus trochiloides trochiloides*, Ali and Ripley, vol. 8 : 169.

Common name : Eastern Greenish Leaf Warbler (English).

Material examined : Nil.

Diagnostic characters : Back dull greenish; yellowish supercilium. Single indistinct wing-bar. Bill dark brown. Legs and feet yellowish brown to greenish brown.

Distribution : India : Meghalaya (Garo Hills and East Khasi Hills districts) : Andaman Island, Arunachal Pradesh, Assam, Kerala, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China and the Indochinese countries.

Remarks : Godwin-Austen (1872, p. 271) procured it from the Garo Hills. Hume (1888, p. 219) reported it from Shillong, the East Khasi Hills as *Phylloscopus lugubris*. Blyth also (1888, p. 221) reported it from Shillong and Cherrapoonjee, the East Khasi Hills as *Reguloides trochiloides* Sund.

426. ***Phylloscopus reguloides assamensis*** Hartert

1921. *Phylloscopus trochiloides assamensis* Hartert, *Vog. Pal. Fauna* (3) : 2139, new name for *Acanthopneuste trochiloides harterti* Baker, 1913, *Bull. Brit. Orn. Cl.*, 31 : 36 (Peak near Shillong, Khasia Hills) nec. *Phylloscopus bonelli* harterti Zedlitz, 1912, *Phylloscopus reguloides terpsinus* Koelz, 1954, *contrib. Inst., Regional Exploration*, No. 1 : 16 (Blue Mountain, Lushai Hills).

1973. *Phylloscopus reguloides assamensis,* Ali and Ripley, vol. 8 : 178.

Common name : Assan Crowned Leaf Warbler (English).

Material examined : Nil.

Diagnostic characters : Back light greyish olive; wings yellowish with two wing-bars. Shoulder yellow. Pale yellow supercilium. A dark line through eye. Underparts whitish tinged greyish on breast and abdomen.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal pradesh, Assam, Manipur, Nagaland and Sikkim. Elsewhere : Bangladesh.

Remarks : Baker (1913, p. 36) recorded it from Peak near Shillong, the East Khasi Hills.

427. ***Phylloscopus reguloides claudiae*** (La Touche)

1922. *Acanthopneuste trochiloides claudiae* La Touche, *Bull. Brit. Orn. Cl.*, 43 : 22 (Mengtz, Yunnan).

1973. *Phylloscopus reguloides clandiae,* Ali and Ripley, vol. 8 : 178.

Common name : Yunnan Crowned Leaf Warbler (English).

Material examined : Nil.

Diagnostic characters : Back light greenish olive. A dark streak through eye. Supercilium and shoulder yellow. Underparts yellow on breast and belly.

Distribution : India : Meghalaya : Manipur.

Remarks : Ripley (1982, p. 439) reported it from Meghalaya.

Genus ***Seicercus*** Swainson, 1837

428. ***Seicercus affinis*** (Hodgson)

1854. *Abrornis affinis* Hodgson, in Horsfield & Moor, *Cat. Bds. E.I.*,Co., 1 : 341 (Nepal).

1973. *Seicercus affinis,* Ali and Ripley, vol. 8 : 180.

Common name : Allied Flycatcher-Warbler (English).

Material examined : Nil.

Diagnostic characters : Back and wings olive-green. Crown striped grey and black. Sides of head yellow. Eye with white eye-ring. Underparts bright yellow.

Ditribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Burma, (Myanmar), Bhutan, Nepal, Thailand and Vietnam.

Remarks : Hume (1888, p. 226) obtained this bird from Shillong, the Khasi Hills and listed it as *Abrornis affinis* Hodgson.

429. ***Seicercus burkii burkii*** (Burton)

1836. *Sylvia burkii* Burton, *Proc. Zool. Soc. Lond. :* 153 (Himalaya Mts., restricted to Sikkim by Ticehurst, 1925, *Bull. Brit. Orn. Cl., 46 : 22*).

1973. *Seicercus burkii burkii,* Ali and Ripley, vol. 8 : 183.

Common name : Eastern Blackbrowed Flycatcher - Warbler (English).

Material examined : Nil.

Diagnostic characters : Back, rump and sides of head olive-green. Supercilium olive-green. Two black stripes on crown. Eye-ring yellow. Lower plumage deep yellow.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, China, Indochinese countries and Nepal.

Remarks : Hume (1888, p. 224) reported it from Shillong, the East Khasi Hills and listed it as *Cryptolopha burkii* Burt.

430. ***Seicercus xanthoschistos tephrodiras*** Sick

1939. *Seicercus xanthoschistos tephrodiras* Sick, *Orn. Monatsb.*, 47 : 78 (Mount Victoria, Chin Hills, Burma = Myanmar).

1973. *Seicercus xanthoschistos tephrodiras*. Ali and Ripley, vol. 8 : 187.

Common name : Assam Greyheaded Flycatcher-Warbler (English).

Material examined : Nil.

Diagnostic characters : Back and crown grey; rump and wings greenish yellow. Supercilium white and long. Inner wave of outer rectrices white. Underparts bright yellow.

Distribution : India : Meghalaya (Khasi Hills district) : Assam and Manipur Hills. Elsewhere : Burma (Myanmar).

Remarks : Hume (1888, p. 225) reported this bird from Shillong, the East Khasi Hills and listed it as *Abrornis xanthoschistus* Hodgson.

431. ***Seicircus poliogenys*** (Blyth)

1847. *C. (ulicipeta) poliogenys* Blyth, *J. Asiat. Soc. Beng.*, 16 : 441 (Darjeeling = Darjiling, Darjiling dist., West Bangal, India).

1973. *Seicercus poliogenys*, Ali and Ripley, vol. 8 : 188.

Common name : Greycheeked Flycatcher-Warbler (English).

Material examined :Nil.

Diagnostic characters : Back oliver-green. Head and nape slaty with two back coronal bands. Eye with white eye-ring. Inner wave of outer rectrices white. Chin and throat pale grey. Breast and belly bright yellow.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Sikkim and West Bengal. Elsewhere : Bangladesh, China and Indochinese countries.

Remarks : Godwin-Austen (1870, p. 107) recorded it from Cherrapoonjee, the East Khasi Hills and recorded it as *Abrornis poliogenys* Godwin-Austen.

432. ***Seicercus castaniceps castaniceps*** (Hodgson)

1845. *Abornis castaniceps* Hodgson in Blyth, *J. Asiat. Soc. Beng.*, 14 : 593 (Nepal).

1973. *Seicercus castaniceps castaniceps,* Ali and Ripley, vol. 8 : 189.

Common name : Chestnut-headed Flycatcher-Warbler (English).

Material examined :Nil.

Diagnostic characters : Back and wing yellowish-olive; crown chestnut. Wing-bar yellow. Throat and upper breast ashy. Lower breast and belly bright yellow. Rump bright yellow.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim and West Bengal Elsewhere : Burma (Myanmar) and China.

Remarks : Ripley (1982, p. 442) mentioned its existence in Meghalaya.

Genus ***Abroscopus*** Baker, 1930

433. ***Abroscopus superciliaris flaviventris*** (Jerdon)

1863. *Abornis flaviventris* Jerdon, *Birds India* 2(1) : 203 Darjeeling = Darjiling, Darjiling dist., (West Bengal, Idnia).

1973. *Abroscopus superciliaris flaviventris,* Ali and Ripley, vol. 8 : 190.

Common name : Sikkim Yellowbellied Flycatcher-Warbler (English).

Material examined :Nil.

Diagnostic characters : Back and wings yellowish olive. Forehead brownish grey. A broad white supercilium Chin and throat white. Breast and belly bright yellow.

Distribution : India : Meghalaya (Garo Hills district) : Assam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Godwin-Austen recorded it from the Garo Hills and listed it as *Abrornis superciliaris* Tickell.

434. ***Abroscopus albogularis albogularis*** (Horsfield & Moore)

1854. *Abornis albogularis* Hodgson = Horsfield & Moore, *Cat. Bds. Mus., E.I. Co.*, 1 : 340 (Nepal).

1973. *Abroscopus albogularis albogularis,* Ali and Ripley, vol. 8 : 194.

Common name : White-throated Flycatcher-Warbler (English).

Material examined : Nil.

Diagnostic characters : Back and wings olive-green. Rump yellowish white. Head rufous with two black superciliary bands to nape. Throat and belly white; a band across breast. Under tail-coverts yellow.

Distribution : India : Meghalaya (Garo Hills district) : Arunachal Pradesh, Assam, Manipur, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Godwin-Austen (1870, p. 271) obtainted this from the forest on the slopes of the Kylas or Chikmang Peak in the Garo Hills and listed it as *Abrornis albogularis* Hodgson.

Genus ***Brachypteryx*** Horsfield, 1822

435. ***Brachypteryx leucophrys nipalensis*** Hodgson

1854. *Brachypteryx nipalensis* Hodgson in Horsfield & Moore, *Cat. Bds. Mus., E.I. Co.*, 1 : 397 (Nepal).

1973. *Brachypteryx leucophrys nipalensis,* Ali and Ripley, 8 : 207.

Common name : Lesser Shortwing (English).

Material examined : Nil.

Diagnostic characters : In male, upper parts dark slaty blue. A white supercilium. Throat and centre of belly white. Breast with a band and vent smoky grey. In female, upper parts rusty olive-brown. Supercilium white. Breast band and vent rusty brown.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), China and Nepal.

Remarks : Hume (1888, p. 121) reported it from the neighbourhood of Shillong, the East Khasi Hills and two or three other places in the Khasi Hills.

436. ***Brachypteryx montana cruralis*** (Blyth)

1843. *Calliope* (? Gould) *cruralis* Blyth, *Asiat. Soc. Beng.,* 12 : 929, 933 (Darjeeling = Darjiling, Darjiling dist., West Bengal, India).

1973. *Brachypteryx montana cruralis,* Ali and Ripley, vol. 8 : 209.

Common name : Whitebrowed Shortwing (English).

Material examined : Nil.

Diagnostic characters : In male, back, wings and tail dark slaty blue; belly ashy. Lores velvety black. Supercilium long and white. In female, wings and back olive-brown. Lores and eye-ring rusty. Throat and breast olive-brown; belly fulvous.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), China and Nepal.

Remarks : Ripley (1982, p. 448) reported it from Meghalaya.

Genus ***Erithacus*** Cuvier, 1800

437. ***Erithacus calliope*** (Pallas)

1776. *Motacilla Calliope* Pallas, *Reise Russ. Reichs,* 3 : 697 (Yenisei).

1973. *Erithacus calliope,* Ali and Ripley, vol. 8 : 215.

Common name : Rubythroat (English).

Material examined : West Garo Hills district : 1 ♂, Kherapara, coll. N. Majumdar, 19.xi.1988.

Diagnostic characters : In male, black olive-brown. Supercilium white. Chin and throat scarlet bordered with a black line on sides of chin. Breast and flanks pale buffish brown; belly white. In female, throat colour of male replaced by white and buff.

Measurements : 1 ♂ : Wing 76, tail 54, bill 17.

Distribution : India : Meghalaya (East Khasi Hills district and West Garro Hills district) : Throughout northern India, South upto Andhra Pradesh through Madhya Pradesh and West Bengal. Elsewhere : Nepal, Bhutan. Bangladesh, Burma (Myanmar), Indochinese countries and southern china to Formosa (=Taiwan) and Philippines. Breeds in Siberia from the Ural Mts. to Anadyr, Kamchatka and Hokkaido.

Remarks : Hume (1888, p. 199) reported it from Shillong, the East Khasi Hills, and listed it as *Calliope camchatkensis Gmelin.*

438. ***Erithacus pectoralis confusus*** (Hartert)

1909. *Luscinia pectoralis confusa* Hartert, *Vog. pal. Fauna,* 1 ; 740 (Sikkim).

1973. *Erithacus pectoralis confusus,* Ali and Ripley, 8 : 224.

Common name : Eastern Rubythroat (English).

Material examined : Nil.

Diagnostic characters : In male, back dark brownish slaty. Forehead and supercilium white. Wings brown. Rectrices blackish brown with white base and tips. Chin and throat scarlet. Breast and sides of throat jet-black. Abdomen and undertail-coverts white. In female, back grey-brown. Rectrices blackish brown with white tips. Throat and breast grey fading to whitish on abdomen and vent.

Distribution : India ; Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Hume (1888, p. 199) recorded it from Shillong, the East Khasi Hills and listed it as *Calliope pectoralis* Gould.

439. ***Erithacus brunneus brunneus*** (Hodgson)

1837. *Larvivora brunnea* Hodgson, *J. Asiat. Soc. Beng.*, 6 : 102 (Nepal).

1982. *Erithacus brunneus brunneus,* Ripley, 452.

Common name : Indian Blue Chat (English).

Material examined : Nil.

Diagnostic characters : In male,back, wings and tail slaty blue. Lores and cheeks black. Supercilium white. Throat bright chestnut bordered with black. Centre of belly and under tail-coverts white. In female, back and wings olive brown. Underparts whitish washed with ochraceous on breast and abdomen.

Distribution : India : Meghalaya (East Khasi Hills district) : Himalayas from Jammu & Kashmir to Arunachal Pradesh, Assam, Karnataka, Kerala and Nagaland. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Nepal and Sri Lanka.

Remarks : Hume (1888, p. 197) collected "Several specimens from Shillong" the East Khasi Hills and listed it as *Larvivora superciliaris* Jerdon.

440. ***Erithacus pectardens*** (David)

1871. *C. (alliope) pectardens* David, *Nouv. Arch. Mus. Paris, Bull. Cat.* no. 167, *nom. nud. Calliope pectardens* David, in David et Oustalet, 1877, *Ois. de la chine,* 1 : 236 (Moupin = Paohing, eastern Sikang).

1973. *Erithacus pectardens,* Ali and Ripley, vol 8 : 228.

Common name : Firethroat (English).

Material examined : Nil.

Diagnostic characters : In male, back and wings bluish slaty. Forehead, lores, round the eye, cheeks and sides of throat black. Tail blackish brown. Inner rectrices white at base except central. Chin, throat and breast flame-coloured widely bordered with black on sides. In female, back and wings olive-brown. Throat pale ochraceous. Belly white. Under tail- coverts ochraceous.

Distribution : India : Meghalaya (West Garo Hills district) : Elsewhere : Breeds from Chumbi valley, southeastern Tribet and north western Yunnan.

Remarks : Koelz (1954) reported this bird from Phulbari, the West Garo Hills and described it as *Luscinia daulias.*

441. ***Erithacus cyanurus rufilatus*** (Hodgson)

1845. *N. (emura) rufilatus* Hodgson, *Proc. Zool. Soc. Lond.* : 27 (central and northern regions of hills, Nepal).

1973. *Erithacus cyanurus rufilatus,* Ali and Ripley, vol. 8, p. 232.

Common name : Eastern Redflanked Bush Robin (English).

Material examined : Nil.

Diagnostic characters : In male, back deep blue. Forehead, supercilium, shoulder-patch and rump sky-blue. Centre of throat white; sides dark blue; belly orange-ochraceous. In female, back olive-brown. Eye-ring pale. Rump and tail bluish. Sides of throat grey-brown.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachl Pradesh, Manipur, Assam, Sikkim and West Bengal. Elsewhere : Nepal, Bhutan and Indochinese countries.

Remarks : Godwin-Austen recorded it from the Khasi Hills and listed it as *Nemura rufilata* Hodgson. Baker (1907, p. 959) reported it from the Khasi Hills as *Ianthia rufilata.*

442. ***Erithacus chrysaeus chrysaeus*** (Hodgson)

1845. *Tarsiger chrysaeus* Hodgson, *Proc. Zool. Soc. Lond.* : 28 (Nepal).

1973. *Erithacus chrysaeus chrysaeus,* Ali and Ripley, 8 : 234.

Common name : Eastern Golden Bush Robin (English).

Material examined : Nil.

Diagnostic characters : In male, upper back and crown olive-brown. Rump, scapulars and sides of back orange. A yellow supercilium and a black band from lores through eyes and cheeks. Wings olive-

brown. Tail orange, central rectrices and terminal band black. Under-parts entirely orange with narrow dusky, crescent-shaped markings. In female, crown and back olive. Supercilium yellowish olive not so prominent. Eye-ring buff. Entire underparts ochre-yellow.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), China and Nepal.

Remarks : Hume (1888, p. 199) reported this bird from the Khasi Hills and listed it as *Tarsiger chryseus* Hodgson.

443. ***Erithacus indicus indicus*** (Vieillot)

1817. *Sylvia indica* Vieillot, *Nouv. Dict. d'Hist. Nat., nouv.* ed., 11 : 267 (India, ex Sonnerat = Darjeeling = Darjilling, Darjiling dist., West Bengal).

1973. *Erithacus indicus indicus,* Ali and Ripley, vol. 8 : 236.

Common name : Whitebrowed Bush Robin (English).

Material examined : Nil.

Diagnostic characters : In male, back slaty blue. Supercilium white; underparts orange-ochraceous. In female, back olive-brown; eye-ring pale. Underparts dull rufous-ochre. Belly paler.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Bihar, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan and Nepal.

Remarks : Ripley (1982, p. 454) reported it from Meghalaya.

444. ***Erithacus hyperythrus*** (Blyth)

1847. *Ianthia hyperythra Blyth*, J. Asiat. Soc. Beng., 16 : 132 (Darjeeling = Darjiling, Darjiling dist., West Bengal, India).

1973. *Erithacus hyperythrus*, Ali and Ripley, vol. 8 : 237.

Common name : Rufousbellied Bush Robin (English).

Material examined : Nil.

Diagnostic characters : In male, back deep purplish blue. Forehead, supercilium, shoulders and lower rump bright ultramarine blue. Underparts bright chestnut. Under tail-coverts white. In female, back dark olive-brown. Rump and upper tail-coverts slaty blue. Tail blackish edged with deep blue. Chin and tbroat rich ochraceous. Breast brown; central of belly and undertail-coverts white.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Asam and Sikkim. Elsewhere : Bhutan and China.

Remarks : Godwin-Austen recorded it from the Khasi Hills and listed it as *Numura hyperythra* Blyth. Baker (1907, p. 959) reported it from the Khasi Hills as Ianthia hyperythra.

Genus ***Copsychus*** Wagler, 1827

445. ***Copsychus saularis erimelas*** (Oberholser)

1923. *Gracula saularis erimelas* Oberholser, *Smiths. Misc. Coll.*, 76 : 1-2 (Kaukarit, Houndraw Branch, Tenasserim, Burma (Myanmar).

1973. *Copsychus saularis erimelas*, Ali and Ripley, vol. 8 : 243.

Common name : Assam Magpie Robin (English).

Material examined : East Garo Hills district : 1 ♀, Darugiri, *c.* 1400ft. coll. R. K. Ghose, 1.vii. 1988; 1 ♀, Rongrenggiri c. 4 km E. of Williamnagar, coll. N. Majumdar, 29.xi. 1988. Jaintia Hills district : 1 ♂ Kopli River, coll. S. K. Chanda, 15.xii. 1975. Khasi Hills district : 1 ♀, Lailad Forest, coll. G. M. Yazdani, 23.v. 1975.

Diagnostic characters : In male, head, throat, breast, back and tail glossy blue-black. Wings blackish brown with a prominent long white-patch. Tail graduated, black with white outer rectrices; 4th rectrices from outer edge of tail black. In female, back slaty and grey on throat and breast.

Measurements :	Wing	Tail	Bill
1 ♂	99	83	22
2 ♀	87,98	72, 85	22(2)

Distribution : India : Meghalaya (East Garo Hills, Jaintia Hills and Khasi Hills districts) : Arunachal Pradesh, Assam, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh, Burma (Myanmar) and Bhutan.

Remarks : Godwin-Austen (1870, p. 106) collected it from the Khasi Hills. Hume (1888, p. 189) reported it from Shillong, the East Khasi Hills and listed it as Copsychus saularis Linnaeus.

446. ***Copsychus malabaricus indicus*** (Baker)

1924. *Kittacincla malabarica indica* Baker, *Fauna Brit. Ind. Bds.*, 2 : 118 (Bhutan Duars).

1973. *Copsychus malabaricus indicus*, Ali and Ripley, 8 : 246.

Common name : Indian Shama (English) and Shama (Hindi).

Material examined : East Garo Hills district : 1 ♂ and 1 ♀ Rongrenggiri, c. 4 km. E. of Williamnagar, coll. N. Majumdar, 27.xi. 1988.

Diagnostic characters : In male, entire head, upper back, throat, breast and wings glossy black. Rump white. Tail strongly graduated. Outer rectrices white, central rectrices black and elongated. Belly and under tail-coverts rufous. In female, similar to male but black replaces by grey, tail shorter.

Measurements :	Wing	Tail	Bill
1 ♂	98	160	21
2 ♀	98, 99	140, 170	21, 22

Distribution : India : Meghalaya (East Garo Hill and West Garo Hills: Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Orissa, Tamil Nadu, Tripura, Uttar Pradesh and West Bengal.

Genu ***Phoenicurus*** Forster, 1817

447. ***Phoenicurus ochruros rufiventris*** (Vieillot)

1818. *Oenanthe rufiventris* Vieillot. *Nauv. Dict. d'Hist. Nat. nouv.* ed., 21 : 431 (S. Africa errore=Gyantse, Tibet *vide* Baker, 1921, Hand-list : 85).

1973. *Phoenicurus ochruros rufiventris*, Ali and Ripley, vol. 8 : 255.

Common name : Eastern Black Redstart (English) and Thirthira (Hindi).

Material examined : Nil.

Diagnostic characters : In male, crown and back entirely black. Rump and tail rufous. Wings brown. Throat and breast black; belly and vent rufous. In female, back dark brown. Eye-ring pale. Belly and flanks tinged with orange-brown.

Distribution : India : Meghalaya (Khasi Hills district) : Throughout the Indian mainland except Haryana, Himachal Pradesh, Jammu & Kashmir, Gujarat, Punjab and Rajasthan. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Hume (1888, p. 194) recorded this bird from Shillong, the East Khasi Hills as *Ruticilla rufiventris* Vieillot.

448. ***Phoenicurus frontalis*** (Vigors)

1832. *Phoenicura frontalis* Vigors, *Proc. Zool. Soc. Lond.* : 172 (Himalayas = Garwal, *vide* Baker, 1924 (April), FBI, 2 : 69).

1973. *Phoenicurus frontalis*, Ali and Ripley, vol. 8 : 258.

Common name : Bluefronted Redstart (English).

Material examined : Nil.

Diagnostic characters : In male, crown, back and throat darker blue; forehead and supercilium bright blue. Wings brown. Rump and tail rufous. Rectrices with a broad terminal black band. Belly and vent orange-chestnut.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere:Bangladesh, Burma (Myanmar), China, Nepal, Pakistan, Vietnam and Tibet.

Remarks : Hume (1888, p. 196) recorded this bird from Shillong, the East Khasi Hills and listed it as *Ruticilla frontalis* Vig.

449. ***Phoenicurus auroreus leucopterus*** (Blyth)

1843. *Phoenicura leucoptera* Blyth, *J. Asiat. Soc. Beng.*, 12 : 962 (Malay Peninsula).

1973. *Phoenicurus auroreus leucopterus*, Ali and Ripley, vol. 8 : 262.

Common name : Daurian Redstart (English).

Material examined : Nil.

Diagnostic characters : In male, lower back, wings black. Wings with a white patch. Crown, nape and upper back slate-grey. Rump and tail rufous. Central rectrices blackish. Sides of neck and throat black. Breast, abdomen and vent rufous. In female, back olive-brown. Rump and tail rufous. Wing-patch cream coloured. Throat paler, breast rufous-brown.

Distribution : India : Meghalaya : (East Khasi Hills district) Arunachal Pradesh, Assam, Manipur, Nagaland, Sikim and West Bengal. Elsewhere : China, Hainan, Indochinese countries, Japan, Tibet and Taiwan.

Remarks : Hume (1888, p. 195) recorded this bird from Shillong, East Khasi Hills as *Ruticilla aurorea* Pall as.

Genus ***Rhyacornis*** Blaneford, 1872

450. ***Rhyacornis fuliginosus fuliginosus*** (Vigors)

1831. *Phoenicura fuliginosa* Vigors, *Proc. Zool. Soc. Lond.* : 35 (Himalayas, restricted to Simla-Almora area by Ticehurs & whistler, 1924, *Ibis* : 471).

1973. *Rhyacornis fuliginosus fuliginosus,* Ali and Ripley, vol. 8 : 266.

Common name : Plumbeous Redstart (English).

Material examined : Nil.

Diagnostic characters : In male, entire head, neck, back, throat and breast bluish slaty. Tail chestnut. Lower belly rufous.

Distribution : India : Meghalaya (Khasi Hills districts) Himalayas from Jammu & Kashmir to Arunachal Pradesh, Manipur, Nagaland. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Hainan, Nepal and Vietnam.

Remarks : Hume (1888, p. 196) reported this bird "from Shillong and the Khasi Hills" as *Rhyacornis fuliginosus* Vig.

Genus ***Cinclidium*** Blytb, 1842

451. ***Cinclidium leucurum*** (Hodgson)

1845. *M. (uscisylvia) leucura* Hodgson, *Proc. Zool. Soc. Lond. :* 27 (Nepal).

1973. *Cinclidium leucurum,* Ali and Ripley, vol. 9 : 1.

Common name : Whitetailed Blue Robin (English).

Material examined : Nil.

Diagnostic characters : In male, back and wings dark indigo. Forehead, supercilium and shoulders blue. Lores and sides of head black. Tail blackish with two white patches on basal half. Throat and breast black. Belly dark indigo. In female, wings and back rufous olive-brown. Tail dark brown. Throat ochraceous. Breast rufous-brown. Belly greyish brown.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Mizoram and Sikkim. Elsewhere : Nepal, Bhutan and extends upto Vietnam.

Remarks : Ripley (1982, p. 461) reported it from Meghalaya.

Genus ***Enicurus*** Temminck, 1822

452. ***Enicurus scouleri scouleri*** Vigors,

1832 *Enicurus scouleri* Vogors, *Proc. Zool. Soc. Lond.* : 174 (Himalayas = Simla).

1973. *Enicurus scouleri scouleri,* Ali and Ripley, vol. 9 : 7.

Common name : Little Forktail (English).

Material examined : Nil.

Diagnostic characters : Forehead white; rest of head, neck and upper back black. Wing with a white trangular bar across. Lower back and base of tail white. A black band across rump. Tail slightly forked, blackish brown; outer ractrices white. Chin and throat black. Breast and abdomen white smeared with black.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Nagaland, Sikkim and Uttar Pradesh. Elsewhere : Bangladesh, China, Nepal, Pakistan and Vietnam.

Remarks : Ripley (1982, p. 462) reported it from Meghalaya.

453. ***Enicurus immaculatus*** (Hodgson)

1836. *Motacilla (Enicurus) Immaculatus* Hodgson, *Asiat. Res.*, 19 : 190 (Nepal).

1973. *Enicurus immaculatus,* Ali and Ripley, vol. 9 : 9

Common name : Blackbacked Forktail (English).

Material examined : Jaintia Hills district : 1 ♂ Umkiang, coll. A. K. Mandal, 24.xi. 1988.

Diagnostic characters : Head and back black. Rump white continued as a white band across black wings. Forehead and supercilium white. Tail long, graduated and deeply forked; outer rectrices white. Upper throat black and rest of underparts white.

Measurements : 1 ♂ : Wing 88, tail 115, bill 20 [from the skull].

Distribution : India : Meghalaya (Garo Hills, Khasi Hills and Jaintia Hills districts) : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and Uttar Pradesh. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Thailand.

Remarks : Hume (1888, p. 228) reported it from the Garo Hills and the Khasi Hills and listed it as *Henicurus immaculatus* Hodgson.

454. ***Enicurus schistaceus*** (Hodgson)

1836. *Motacilla (Enicurus) schistaceus* Hodgson, *Asiat. Res.*, 19 : 189 (Nepal).

1973. *Enicurus schistaceus,* Ali and Ripley, vol. 9 : 10.

Common name : Slatybacked Forktail (English).

Material examined : Nil.

Diagnostic characters : Back and crown slaty. Winjgs black with a broad white band across. A small white patch on primaries. Rump white. Tail long, very deeply forked and graduated. Inner

rectrices black with white tips. Outer rectrices white. A narrow frontal band and short supercilium white. Chin and sids of throat black. Throat, breast and vent white.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), Indo-chinese countries and China.

Remarks : Ripley (1982, p. 463) recorded it from Meghalaya.

455. ***Enicurus leschenaulti indicus*** Hartert

1909. *Enicurus leschenaulti indicus* Hartert, *Vog. Pal. Fauna*, 1 : 760 (Margherita, Upper Assam).

1973. *Enicurus leschenaulti indicus*, Ali and Ripley, vol. 9 : 12.

Common name : Leschenault's Forktail (English).

Material examined : Nil.

Diagnostic characters : Very similar to the preceding bird but largest and blackest of the fork-tails. White of forehead extending to top of crown. Black of underparts extending to breast and flanks.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Thailand and Vietnam.

Remarks : Ripley (1982, p. 463) recorded it from Meghalaya.

456. ***Enicurus maculatus guttatus*** Gould

1865. *Enicurus guttatus* Gould, *Proc. Zool. Soc. Lond.* : 664. (Sikkim = Darjeeling = Darjilling, Darjiling dist., West Bengal, India).

1973. *Enicurus maculatus guttatus*, Ali and Ripley, vol. 9 : 15.

Common name : Eastern Spotted Forktail (English).

Material examined : Nil.

Diagnostic characters : Back black spotted with white. Sides of head and nape black. Forehead and forecrown white. Rump and wing-bar white. Tail deeply forked and graduated. Throat and breast black; belly white.

Distribution : India : Meghalaya (Khasi Hills districts) : Arunachal Pradesh, Manipur, Mizoram, Nagaland. Elsewhere : Bangladesh, Burma, China and Nepal.

Remarks : Godwin-Austen (1870, p. 107) got a young bird at Cherrapoonjee. Hume (1888, p. 227) reported it from Shillong, the East Khasi Hills and other places in the Khasi Hills and listed it as *Henicurus guttatus* Gould. Baker (1907, p. 958) reported it from the Khasi Hills as *Henicurus guttatus*.

Genus ***Cochoa*** Hodgson, 1836

457. ***Cochoa purpurea*** Hodgson

1836. *Cochoa purpurea* Hodgson, *J. Asiat. Soc. Beng.*, 5 : 359 (Nepal).

1973. *Cochoa purpurea*, Ali and Ripley, vol. 9 : 16.

Common name : Purple Cochoa (English).

Material Examined : Nil.

Diagnostic characters : In male, back brownish purple. Crown lavender-blue. Supercilium, ear-coverts and nape black. Wing purple -lavender with black tip and a patch-shoulder at the middle of wing. Underparts brownish purple.

Distribution : India : Meghalaya : Assam, Manipur, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, China, Nepal and Vietnam..

Remarks : Ripley (1982, p. 464) mentioned its existence in Meghalaya.

Genus ***Saxicola*** Bechstein, 1803

458. ***Saxicola torquata przevalskii*** (Pleske)

1889. *Pratincola maura* var. *Przevalskii* Pleske, *Wiss. Res.* Prezevalskii's Reise, *Th. Vog.*, 2 : 46, pl. 4 (Kansu).

1973. *Saxicola torquata przevalskii,* Ali and Ripley, vol. 9 : 27.

Common name : Tibetan Collared Bush Chat (English).

Material examined : Jaintia Hills district : 1 ♂, Thadleskein, coll. A. K. Mondal, 20. xi. 1988.

Diagnostic characters : In male (Summer) : Head, back, tail and wing black. Wing with white wing-patch. Rump white. Throat black. Breast rufous-chestnut, belly buff. In female, back, wings and tail rufous-brown streaked with dark brown. Rump pale rufous. Tail blackish brown. Breast rufous.

Measurements : 1 ♂ : Wing 70, tail 152, bill 15 [from the skull].

Distribution : India : Meghalaya (Jaintia Hills district) : Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Nagaland and Tripura. Elsewhere : Nepal. Breeds in Tibet and in the mountains of western China.

459. ***Saxicola torquata indica*** (Blyth)

1847. *Pratincola indica* Blyth, *J. Asiat. Soc. Beng.*, 16 : 129 (India = Calcutta, Calcutta dist., West Bengal, India.).

1973. *Saxicola torquata indica,* Ali and Ripley, vol. 9 : 28.

Common name : Indian Collared Bush Chat (English).

Material examined : Nil.

Diagnostic characters : In male, back and throat black. Rump and wing-patch white. A white patch on sides of neck and breast; breast rufous-chestnut; belly and vent paling to buff. In female, back rufous-brown streaked with dark brown. Tail blackish brown. Rump pale rufous; underparts pale fufous, breast rufous.

Distribution : India : Meghalaya (East Khasi Hills district) : Throughout the Indian mainland except Kerala and Tamil Nadu. Elsewhere : Bangladesh, Bhutan, Nepal and Pakistan.

Remarks : Observed it near Barapani the Ri-Bhoi Hills.

460. ***Saxicola caprata burmanica*** Baker

1923. *Saxicola caprata burmanica* Baker, *Bull. Brit. Orn. Cl.*, 43 : 9 (Pegu).

1973. *Saxicola caprata burmanica*, Ali and Ripley, vol. 9 : 34.

Common name : Burmese Pied Bush Chat (English).

Material examined : Nil.

Diagnostic characters : In male, head, back, wing and tail jet-black. Belly white. In female, head, back and wing brown. Tail blackish brown. Breast and belly rusty.

Distribution : India : Meghalaya : Adhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Nagaland, Tripura and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), Indochinese countries and Thailand.

Remarks : Ripley (1982, p. 467) mentioned its existence from Meghalaya.

461. ***Saxicola jerdoni*** (Blyth)

1867. *Oreicola jerdoni* Blyth, *Ibis* : 14, new name for *Rhodophila melanoleuca* Jerdon, 1863, *Bds. India*, 2 : 128 (Purneah).*nec. Oenanthe melanoleuca* Vieillot, 1818, Baker, *FBI* No. 501, vol. 2 : 35.

1973. *Saxicola jerdoni*, Ali and Ripley, vol. 9 : 36.

Common name : Jerdon's Bush Chat (English).

Diagnostic characters : In male, entire head, neck, wings, back and tail glossy black. Chin, throat, breast and belly white. In female, head, back, wings and tail brown tinged with rufous. Throat white. Breast and belly pale fulvous.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Bihar, Manipur, Mizoram, Nagaland, Tripura and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), Thailand and Vietnam.

Remarks : Ali and Ripley (1973, vol. 9 : 36) reported it from Meghalaya.

462. ***Saxicola ferrea*** Gray

1846. *Saxicola ferrea* Gray, *Cat. Mamms. Bds. Nepal* : 71, 153 (Nepal).

1973. *Saxicola ferrea*, Ali and Ripley, vol. 9 : 37.

Common name : Dark-grey Bush Chat (English).

Material examined : Nil.

Diagnostic characters : Size equal to House Sparrow. In male, apparently pied black and white plumages. Supercilium white. Black tail with whitish outer edges. Throat and belly white. Breast and flanks pale grey. In female, crown, back and tail rufous-brown faintly streaked with darker brown. Supercilium pale, sides of head dark brown. Chin and throat white, vent and belly fulvous.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Himachal Pradesh, Jammu& Kashmir, Manipur, Mizoram, Sikkim, Uttar Pradesh and West Bengal. Elsewhere:Bangladesh, Burma (Myanmar), China, Indochinese countries, Nepal Pakistan and Thailand.

Remarks : Hume (1888, p. 193) reported this bird from the Khasi Hills as *Pratincola ferreus* Hodgson.

Genus ***Chaimarrornis*** Hodgson, 1844

463. ***Chaimarrornis leucocephalus*** (Vigors)

1831. *Phoenicura leucocephala* Vigors, *Proc. Zool. Soc. Lond.* : 35 (Himalayas = Simla Almora district, India).

1973. *Chaimarrornis leucocephalus,* Ali and Ripley, vol. 9 : 57.

Common name : Whitecapped Redstart (English) and Gir-Chaondia (Hindi).

Material examined : Nil.

Diagnostic characters : Forehead, sides of crown, sides of head, back, wings, throat and breast black. Crown and nape white. Rump and tail rich chestnut. Terminal band of tail black. Abdomen and vent chestnut.

Distribution : India : Meghalaya (Khasi Hills district) : Arunchal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Nagaland, Sikkim and Uttar Pradesh. Elsewhere : Afghanistan, Bhutan, China, Nepal and Tibet.

Remarks : Hume (1888, p. 197) reported it "from Shillong and the Khasi Hills"

Genus ***Monticola*** Boie, 1822

464. ***Monticola cinclorhynchus*** (Vigors)

1832. *Petrocincla cinclorhyncha* Vigor; *Proc. Zool. Soc. Lond.* : 172 (Himalayan Mountains = Simla)

1973. *Monticola cinclorhynchus,* Ali and Ripley, vol. 9 : 67.

Common name : Blueheaded Rock Thrush (English).

Material examined : Nil.

Diagnostic characters : In male, back and a broad band from lores through ear-coverts, black. Crown and nape blue. Shoulders blue; a white patch on wings. Rump fufous. Tail blackish narrowly edged with blue. Throat blue, rest of underparts orange-rufous. In female, upperpart olive-brown. Underparts squamate whitish and dark brown.

Distribution : India : Meghalaya(Khasi Hills district) : Himalays from Jammu & Kashmir to Arunachal Pradesh, Assam, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan and Tamil Nadu. Elsewhere : Afghanistan, Bhutan, Burma (Myanmar) and Pakistan.

Remarks : Godwin-Austen reported it from the Khasi Hills as *Cyanocinclus cyanus* Linnaeus.

465. ***Monticola rufiventris*** (Jardine & Selby)

1832. *Turdus erythrogaster* Vigors, *Proc. Zool. Soc. Lond.* : 171 (Himalayan mountains).

1973. *Monticola rufiventris*, Ali and Ripley, vol. 9 : 70.

Common name : Chestnutbellied Rock Thrush (English).

Material examined : Khasi Hills district : 1 ♂ Motinagar forest, coll. T. D. Soota, 31.i. 1974.

Diagnostic characters : Size equal to Myna. In male, crown and mantle bright cobalt-blue with some blackish. Sides of neck and ear-coverts black. Throat blackish blue; breast and belly chestnut. In female, back and rump olive-brown with buff patch. Dark grey-brown ear-coverts. Centre of throat whitish; sides of head dark grey mottled with buff. Breast and belly squamat *examined* dark brown and buff.

Measurements : 1 ♂ : Wing 121, tail 97, bill 27.

Distribution : India : Meghalaya(East Khasi Hills district) : Arunachal Pradesh, Assam, Bihar, Haryana, Himachal Pradesh, Jammu & Kashmir, Manipur, Mizoram, Nagaland, Punjab, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, China, Nepal and Pakistan.

Remarks : Hume (1888, p. 126) collected this bird from Shillong, the East Khasi Hills listed it as *Petrophila erythrogastra* Vigors.

466. ***Monticola solitarius pandoo*** (Sykes)

1832. *Petrocincla Pandoo* Sykes, Proc. *Zool. Soc. Lond.* : 87 (Ghauts, Dukhun, Poona = Pune, India).

1973. *Monticola solitarius pandoo,* Ali and Ripley, vol. 9 : 73.

Common name : Indian Blue Rock Thrush (English).

Material examined : South Garo Hills district : 1 ♂ Baghmara, c. 100 km. S. of Tura, coll. N. Majumdar, 24.xi. 1988. East Khasi Hills district : 1 ♀, Cherrapunji, coll. R.S. Pillai, 21.iii. 1972. Jaintia Hills district : 1 ♀, Kopli, Road Side, coll. A. K. Ghose, 13.i. 1976.

Diagnostic characters : Size equal to Bulbul. In male, very bright, almost azure-blue plumage in summer. Tail and wings brown. In winter, plumage are fringed with fulvous above. Breast brown, belly white. In female, grey-brown on back. Throat and breast with fine dark shaft-streaks. Rump barred with blackish.

Measurements :	Wing	Tail	Bill
1♂	120	83	27
2♀	117, 120	82, 83	25, 27

Distribution : India : Meghalaya (East Khasi Hills, Jaintia Hills and South Garo Hills districts) : Andaman Islands, Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Maharashtra, Punjab, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Burma(Myanmar), Nepal, Pakistan, Sri Lanka, Tibet and Turkestan.

Genus ***Myiophonus*** Temminck, 1822

467. ***Myiophonus caeruleus temminckii*** Vigors

1832. *Myophonus Temminckii* Vigors, *Proc. Zool. Soc. Lond.* : 171 (Himalayan Mountains = Simla-Almora district, India)

1973. *Myiophonus caeruleus temminckii,* Ali and Ripley, vol. 9 : 79.

Common name : Himalayan Whistling Thrush (English).

Material examined : Nil.

Diagnostic characters : Equal to Pigeon. Upper and below plumages entirely dark purple-blue spotted with glistening blue. Forehead, shoulders, edges of wings and tail brighter blue. White spots on median wing-coverts (half-dozen). Yellow bill.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Mizoram, Nagaland, Punjab, Tripura, Sikkim, Uttar Pradesh and West Bengal. Elsewhere :Afghanisthan, Bhutan, China, Indochinese countries, Indonesian Islands, Japan, Nepal, Pakistan and Turkestan.

Remarks : Hume (1888, p. 122) remarked "It must be common in the Khasi Hills and occurs close to Shillong itself"

Genus ***Zoothera*** Vigors, 1832

468. ***Zoothera citrina citrina*** (Latham)

1790. *Turdus citrinus* Latham, *Index Orn.*, 1 : 350 (India, Cachar),

1973. *Zoothera citrina citrina*, Ali and Ripley, vol. 9 : 86.

Common name : Orangeheaded Ground Thrush (English).

Diagnostic characters : In male, back, tail and wings bluish grey. Entire head, nape, throat and breast orange-chestnut. Vent and undertail-coverts white. Wing with a white wing-bar. Outer rectrices lightly tipped white. In female, similar to male excepting the mantle strongly tinged with olive-brown.

Distribution : India : Meghalaya (Garo Hills district) : Throughout the Indian Union except Andhra Pradesh, Gujarat, Karnataka, Kerala, Maharashtra and Nagaland. Elsewherre : Bangladesh, Pakistan and Nepal.

Remarks : Godwin-Austen (1870, p. 268) recorded it from the Garo Hills and listed it as *Geocichla citrina* Latham.

469. ***Zoothera mollissima mollissima*** (Blyth)

1842. *T. (urdus) mollissimus* Blyth, *J. Asiat. Soc. Beng.*, 11 ; 188 (Darjeeling = Darjiling, Darjiling dist., West Bengal, India).

1973. *Zoothera mollissima mollissima*, Ali and Ripley, vol. 9 : 94.

Common name : Eastern Plainbacked Mountain Thrush (English).

Material examined : Nil.

Diagnostic characters : Size slightly bigger than the Myna. Crown, back and tail rufescent olive-brown. Pale eye-ring conspicuous. Tips of tail-feathers white. Throat, sides of neck, breast and flanks buff. Belly whitish, boldly marked with dark brown crescentic spots.

Distribution: India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Sikkim and West Bengal. Elsewhere : Bhutan, China and Nepal.

Remarks : Godwin-Austen (1870, p. 103) obtained this bird from the Khasi Hills and listed it as *Oreocincla mollissima* Blyth.

470. ***Zoothera dauma dauma*** (Latham)

1790. *Turdus Dauma* Latham, *Index Orn.*, 1 : 362 (India = Kashmir).

1973. *Zoothera dauma dauma*, Ali and Ripley, vol. 9 : 97.

Common name : Smallbilled Mountain Thrush (English).

Material examined : Nil.

Diagnostic characters : Size equal to the preceding bird. Entire body olive-brown with buff and black crescent-shaped markings. Wings with buff and dark brown-bars. Throat and belly whitish, breast and flanks buff.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Orissa, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Nepal, Thailand and Vietnam.

Remarks : Ripley (1982, p. 479) reported it from Meghalaya.

471. ***Zoothera monticola monticola*** Vigors

1832. *Zoothera monticola* Vigors, *Proc. Zool. Soc. Lond.* : 172 (Himalayas = Simla = Almora dist., India).

1973. *Zoothera monticola monticola,* Ali and Ripley, vol. 9 : 101.

Common name : Large Brown Thrush (English).

Material examined : Nil.

Diagnostic characters : Size slightly bigger than the Myna. Crown, back and tail dark slaty brown. Bill curved and very large. Throat whitish with a few dark brown spots. Belly white dark brown spots.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Manipur, Mizoram, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere:Bhutan, Burma (Myanmar) and Nepal.

Remarks : Godwin-Austen (1872. p.142) reported it from the Khasi Hills.

472. ***Zoothera marginata*** Blyth

1847. *Z. (oothera) marginata* Blyth, *Asiat. Soc. Beng.*, 16 : 141 (Arracan = Arakan, Burma = Myanmar).

1973. *Zoothera marginata,* Ali and Ripley, vol. 9 : 104.

Common name : Lesser Brown Thrush (English).

Material examined : Nil.

Diagnostic characters : Crown, back, wing and tail rufescent olive-brown. Chin and throat whitish. A dark brown streak on each side of throat. Breast and belly baffish white scalloped with olive-brown. Abdomen olive-brown with whitish streak.

Distribution : India : Meghalaya (West Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Mizorama,Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal, Thailand and Vietnam.

Remarks : Godwin-Austen (1872, p.288) recorded it from the West Khasi Hills.

Genus ***Turdus*** Linnaeus, 1758

473. ***Turdus dissimilis dissimilis*** Blyth

1847. *T. (urdus) dissimilis* Blyth, *J. Asiat. Soc. Beng.*, 16 : 144 (Lower Bengal).

1973. *Turdus dissimilis dissimilis*, Ali amd Ripley, vol. 9 : 106.

Common name : Blackbreasted Thrush (English).

Material examined : Nil.

Diagnostic characters : In male, back slaty; head and nape black. Throat and breast black. Belly, flanks and axillaries orange-rufous. Under tail-coverts white. In female, back dark olive-brown. throat whitish streaked with brown. Breast olivaceous streaked with black.

Distribution : India : Meghalaya (Garo Hills district) : Assam, Manipur, Nagaland and Tripura. Elsewhere : Bangladesh, China and Vietnam.

Remarks : Godwin-Austen (1872, p. 142) recorded it from the Garo Hills and listed it as *Turdus dissimilis* Blyth.

474. ***Turdus unicolor*** Tickell

1833. *T. (urdus) Unicolor* T. (ickell), *J. Asiat. Soc. Beng.*, 2 : 577 (Bansigar in Borabhum = Barahabhum, Purulia dist., W. Bengal).

1973. *Turdus unicolor*, Ali and Ripley, vol. 9 : 108.

Common name : Tickell's Thrush (English).

Material examined : Nil.

Diagnostic characters : Size equal to Myna. In female, crown, back and tail olive-brown; eye-ring buff, whitish throat, upper breast streaked with brown. Belly and undertail-coverts white. In male, back and tail ashy-grey. Breast pale grey, belly whitish.

Distribution : India : Meghalaya (East Khasi Hills district) : Andhra Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Orissa, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Nepal and Pakistan.

Remarks : Koelz (1954) reported it from Mawphlang, the Khasi Hills and described it as *Turdus unicolor subbicolor*.

475. ***Turdus albocinctus*** Royle

1840. *T. (urdus) albocinctus* Royle, *Ill. Bot. Himalayan Mountains* (1839); Ixxvii, Ixxviii, applied to plate of T. albicollis (Hills = Himalays, restricted to Dehra Dun).

1973. *Turdus albocinctus*, Ali and Ripley, vol. 9 : 110.

Common name : Whitecollared Blackbird (English) and Kundoo Kastura (Hindi).

Material examined : Nil.

Diagnostic characters : In male, entire body is black or blackish. A broad white collar around the neck and upper back. Throat white. Undertail-coverts black with white shaft-streaks. Bill, legs and feet yellow. In female, colouration rufous-brown and the collar is dull ashy.

Distribution : India : Meghalaya (West Garo Hills district) : Arunachal Pradesh, Assam, Himachal Pradesh, Manipur, Nagaland, Sikkim and Uttar Pradesh. Elsewhere : Bhutan, Nepal and Tibet.

Remarks : Godwin-Austen reported it from the Tura range of the West Garo Hills.

476. ***Turdus boulboul*** (Latham)

1790. *Lanius boulboul* Latham, *Index Orn.*, 1 : 80 (India = Darjeeling = Darjiling, Darjiling dist., West Bengal).

1973. *Turdus boulboul,* Ali and Ripley, vol. 9 : 112.

Common name : Greywinged Blackbird (English) and Kasturi (Hindi).

Material examined : Nil.

Diagnostic characters : Size bigger than the Myna. In male, entire plumages black, greywing with wing-patch; belly and under tail-coverts with whitish fringes. Yellow eye-rim. Bill orange. In female, entire plumages ashy tinged with olivaceous. Wing-patch rufous-brown.

Distribution:: India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Haryana, Himachal Pradesl, Jammu & Kashmir, Manipur, Nagaland, Punjab, Rajasthan, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Burma (Myanmar), Kwangsi, Nepal, Pakistan, Thailand and Vietnam.

Remarks : Hume (1888, p. 128) reported it from Shillong, the East Khasi Hills and listed it as *Merula boulboul* Latham.

477. ***Turdus rubrocanus rubrocanus*** G. R. Gray

1844. *T. (urdus) rubrocanus* Hodgson in Grey, *Zool. Misc.* : 83 (Nepal).

1973. *Turdus rubrocanus rubrocanus,* Ali and Ripley, vol. 9 : 122.

Common name : Western Greyheaded Thrush (English) and Lal Kastura (Hindi).

Material examined : Nil.

Diagnostic characters : In male, back chestnut; wings and tail blackish. Head and neck creamy-grey paling to whitish on nape. Throat and upper breast whitish. Abdomen and vent chestnut. Centre of belly whitish. In female, colouration much duller. Head darker and brownish. Chestnut colour become paler and margined below with pale greyish.

Distribution : India : Meghalaya (West Garo Hills district) : Assam,, Himachal Pradesh, Jammu & Kashmir and Sikkim. Elsewhere : Nepal and Pakistan.

Remarks : Godwin-Austen (1872, p.268) reported it from the Tura Range of the Garo Hills and listed it as *Merula castanea* Gould.

478. ***Turdus rubrocanus gouldii*** (Verreaux)

1871. *Merula Gouldii* Verreaux, *Nouv. Arch. du Mus. d' Hist. Nat. Paria,* 6 : 34 (Setchuan occidental = Paohing, eastern Sikang).

1973. *Turdus rubrocanus gouldii,* Ali and Riply, vol 9 : 124.

Common name : Eastern Greyheaded Thrush (English).

Material examined Nil.

Diagnostic characters : In male, back rusty : wings and tail blackish. Whole head smoky-grey. Throat, upper breast and centre of belly whitish. Upper belly and flanks chestnut. In female, head darker and brownish. Back chestnut paler and marginated below with pale greyish.

Distribution : India : Meghalaya : (Khasi Hills district) : Assam and Nagaland. Elsewhere : Burma (Myanmar) , China, Napal and tibet.

Remarks : Baker (1907) recorded it from the Khasi Hills.

479. ***Turdus feai*** (Salvadori)

1887. *Merula Feai* Salvadori, *Ann. Mus. Civ. Genova,* (2) 5 : 514 (Muleyit Mt., Tenasserim, Burma = Myanmar).

1973. *Turdus feai,* Ali and Ripley, vol. 9 : 125.

Common name : Fea's Thrush (English).

Material examined : Nil.

Diagnostic characters : In male, crown, back, wings and tail russet-brown. A narrow white supercilium. Lores black. a white spot under the eye. Throat, sides of head and upper breast grey more or less suffused with a rusty hue. Abdomen and vent white. Under tail-coverts with broad grey-brown margins. In female, similar to male except chin and throat white speckled with brown. The grey colouration of male replaced by fulvous grey.

Distribution : India : Meghalaya (East Khasi Hills district) : Assam, Manipur and Nagaland. Elsewhere : Burma and China.

Remarks : Baker (1907, p. 959) recorded it from Shillong and Cherrapunjee, the East Khasi Hills).

480. ***Turdus obscurus*** Gmelin

1789. *Turdus obscurus* Gmelin, *Syst. Nat.,* 1 : 816 (Siberia = Lake Baikal).

1973. *Turdus obscurus,* Ali and Ripley, vol. 9 : 126.

Common name : Dark Thrush (English).

Material examined : Nil.

Diagnostic characters : In male, back and wings olive-brown. Sides of head and nape greyer. A broad white supercilium. Lores black. A white spot under the eye. Chin white; throat slaty grey, breast and flanks pale fulvous-brown. Belly white. Under tail-coverts white, edged brown at base.

Distribution : India : Meghalaya (East Khasi Hills district): Andaman Islands, Arunachal Pradesh, Assam, Karnataka, Manipur, Mizoram, Nagaland and Sikkim.

Remarks : Hume (1888l, p. 130) recorded this bird from Shillong, the East Khasi Hills. Godwin-Austen (1872, p. 143) reported it from "Cherrapunji" and listed it as *"Turdus Pallens"* Pallas.

481. ***Turdus ruficollis atrogularis*** Jarocki

1819. *Turdus atrogularis* Jarocki, *Spis. Ptakow krol Warszawa :* 14 (Poland).

1973. *Turdus ruficollis atrogularis*, Ali and Ripley, vol. 9 : 127.

Common name : Blackthroated thrush (English).

Material examined : East Khasi Hills district : 1 ♂, Cherrapunji, coll. T. D. Soota, 10.ii. 1974.

Diagnostic characters : Size equal to Myna. In male, crown, back and tail grey-brown; lores and supercillum black. Sides of neck black. Ear-coverts grey-brown. Throat and breast black; vent and belly white. In female, throat whitish and streaked dark brown. Breast-band blackish with whitish fringes. Vent and belly white and sides with a few pale brown streaks.

Measurements : 1 ♂: Wing 132, tail 90 bill[from the skull] 24

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Manipur, Nagaland, Orissa, Punjab, Rajashthan, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan and Nepal.

Breeds in eastern Russia and eastward through the Siberian taiga to the Yenisey.

Remarks : Hume (1888, p. 129) reported this bird from Shillong, the East Khasi Hills.

482. ***Turdus ruficollis ruficollis*** Pallas

1776. *Turdus ruficollis* Pallas, *Reise Russ, Reichs* 3 : 694 (Dauria).

1973. *Turdus ruficollis ruficollis,* Ali and Ripley, vol. 9 : 129.

Common name; : Redthroated Thrush (English).

Material examined : Nil.

Diagnostic characters : In male, back and wings grey-brown. Supercilium chestnut. Tail rufous except central rectrices. Throat chestnut. In female, throat pale chestnut and mush mottled with white and heavily spotted with black.

Distribution : India : Meghalaya : (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland and Sikkim. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Nepal and Tibet. Breeds in Siberia.

Remarks : Godwin-Austen reported it from the Khasi Hills. Baker (1907. p. 959) collected it from the Khasi Hills as *Merula ruficollis.*

483. ***Turdus naumanni eunomus*** Temminck

1831. *Turdus eunomus* Temminck, *Pl. Col* 5, *livr.* 87, Pl. 514 (Japan).

1973. *Turdus naumanni eunomus,* Ali and Ripley, vol. 9 : 130.

Common name : Dusky Thrush (English).

Material examined : Nil.

Diagnostic characters : In male, head and back blackish brown with rufous-brown margins. Rump rufous. Supercilium long whitish. Ear-patch large blackish. Wings rufous. Tail blackish. Breast and flanks blackish brown with broad white margins. Belly white. In female, head and back grey-brown. Rump rufous-brown.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, and West Bengal. Elsewhere : Burma (Myanmar), China, Nepal, Pakistan, Southeastern Asia from Japan and Hopeh south to Taiwan Breeds in Siberia from the Yenisey river to Kamchatka.

Remarks : Hume (1888, p. 130) recorded it from the Khasi Hills.

Family CINCLIDAE

Genus ***Cinclus*** Borkhausen, 1797

484. ***Cinclus pallasii dorjei*** Kinnear

1937. *Cinclus pallasii dorjei* Kinnear, *Ibis* : 263 (Sakden, E. Bhutan).

1973. *Cinclus pallasii dorjei,* Ali and Ripley, vol. 9 : 144.

Common name : East Himalayan Brown Dipper (English).

Material examined : Nil.

Diagnostic characters : Entire plumage chocolate-brown. Outer edges of secondaries white. Eye with white eye-ring.

Distribution : India : Meghalaya (East Khasi Hills and Ri-Bhoi Hills districts) : Arunachal Pradesh, Assam, Manipur and Sikkim. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Tibet.

Remarks : Hume (1888, p. 124) collected several specimens from Shillong, the East Khasi Hills Koelz (1954) recorded it from Barapani, the Ri-Bhoi Hills and described it as *Cinclus pallasii undina.*

Family PARIDAE

Key to the genera of the family Paridae

1. Crown with a long bright yellow crest ..... ***Melanochlora***

   Yellow crest on crown absent 2

2. Crown black; bill short and conical ..... ***Parus***

   Crown rufous-chestnut; bill very short and stout ..... ***Aegithalos***

Genus ***Melanochlora*** Lesson, 1839

485. ***Melanochlora sultanea sultanea*** (Hodgson)

1837. *Parus sultanea* Hodgson, *Ind. Rev.*, 2(1) : 31 (Central and northern regions of the Hills, Nepal).

1973. *Melanochlora sultanea sultanea,* Ali and Ripley, vol. 9 : 162.

Common name : Sultan Tit (English).

Material examined : West Garo hills district : 1 ♂ Tura, coll. N. A. Belletty, date not known.

Diagnostic characters : In male, back, wings, head and tail black with a metallic greenish cast. Forehead, crown and long crest bright yellow. Chin and throat black. Breast, abdomen and vent bright yellow. In female, back, wings and tail blackish olive. Throat yellowish olive.

Measurements : 1 ♂ : Wing 108, tail 94, bill [from the skull] 17.

Distribution : India : Meghalaya (Khasi Hills district and West Garo Hills district) : Arunachal Pradesh, Assam Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Hume (1888, p. 256) reported this bird from the Khasi Hills.

Genus ***Parus*** Linnaeus, 1758

486. ***Parus major nipalensis*** Hodgson

1837. *Parus Nipalensis* Hodgson, *Ind. Rev.*, 2 (1) : 31 (Nepal).

1973. *Parus major nipalensis*, Ali and Ripley, vol. 9 : 168.

Common name : Nepal Grey Tit (English).

Material examined : Nil.

Diagnostic characters : Back grey, crown black; cheeks white. A whitish patch on nape. Wings dark brown, tertials broadly edged with pale ashy; a white wing-bar. Tail blackish with white outer rectrices. Throat black continued in a broad black band running down the middle of underparts.

Distribution : India : Meghalaya (Garo Hills district) : Assam, Bihar, Manipur, Nagaland, Punjab, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar), Nepal and Pakistan.

Remarks : Godwin-Austen collected it from the bases of the Garo Hills and listed it as *Hydrornis nipalensis* Hodgson.

487. ***Parus monticolus monticolus*** Vigors

1831. *Parus monticolus* Vigors, Proc. Zool. Soc. Lond. : 22 (Himalayan Mountains = Simla-Almora dist., India).

1973 *Parus monticolus monticolus*, Ali and Ripley, vol. 9 : 174.

Common name :: Greenbacked Til (English).

Material examined : Nil.

Diagnostic characters : Back yellowish olive. Crown and sides of neck black;cheeks and nuchal-patch white; rump grey, wings bluish with two white wing bars; tail bluish with white tips on outer rectrices. Throat black and broad black band running down the middle of yellow belly.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Manipur, Nagaland, Punjab, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, China, Japan, Nepal, Pakistan, Taiwan and Vietnam.

Remarks : Baker (1907, p. 784) recorded it from the Khasi Hills.

488. ***Parus spilonotus subviridis*** Blyth

1855. *Parus subviridis* Blyth (ex. Tickell Ms), *J. Asiat. Soc. Beng.*, 24 ; 267 (Tenasserim, Burma = Myanmar).

1982. *Parus spilonotus subviridis*, Ripley : 500.

Common name : Assam Blackspotted Yellow Tit (English).

Material examined : Nil.

Diagnostic characters : Back streaked with black; crown and a band behind eye black. Feathers of pointed erect crest are tipped with yellow. Forehead and lore yellow; supercilium long and yellow. Nape-patch yellow. A white longitudinal wing-patch is found on yellow and black spotted wings white-tipped and outer edged blackish slate tail. A broad black median band from chin to vent on bright yellow underparts.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Manipur, Mizoram and Nagaland. Elsewhiere : Burma (Myanmar), China, Thailand and Vietnam.

Remarks : Hume (1888, p. 255) collected this bird "from several parts of the Khasi Hills" and listed it as *Machlolophus spilonotus* Blyth.

Genus ***Aegithalos*** Hermann, 1804

489. ***Aegithalos concinnus manipurensis*** (Hume)

1888. *AE. (githaliscus) manipurensis* Hume, *Stray Feathers*, 11 : 254 (Eastern Hills, Manipur).

1973. *Aegithalos concinnus manipurensis*, Ali and Ripley, vol. 9 : 202.

Common name : Manipur Redheaded Tit (English).

Material examined : Nil.

Diagnostic characters : Back grey. Crown rufous-chestnut. Supercilium white. A black band from lores to ear-coverts. Eye yellowish white. Wings brown with darker shoulder-patch. Tail brown with white outer edge and tips. Chin and sides of throat white. Centre of throat black. Breast and belly ochraceous buff.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Manipur, Mizoram and Nagaland. Elsewhere : Burma (Myanmar).

Remarks : Ali and Ripley (1973, vol. 9 : 202), reported it from the Khasi Hills.

Family SITTIDAE

Genus ***sitta*** Linnaeus, 1758

490. ***Sitta europaea nagaensis*** Godwin-Austen

1874. *Sitta nagaensis* Godwin-Austen, *Proc. Zool. Soc. Lond.* : 44 (Naga Hills).

1973. *Sitta europaea nagaensis*, Ali and Ripley, vol.9 : 211.

Common name : Naga Nuthatch (English).

Material examined : Nil.

Diagnostic characters : In male, crown, back and wings bluish slaty. A black band from lores through eye to nape. Tail blackish with white subterminal spots. Chin, throat breast and sides of head pure ashy. In female, similar to male but paler below.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Burma (Myanmar).

Remarks : Ali and Ripley (1973, vol. 9 : 211) reported it from the Khasi Hills.

491. ***Sitta castanea cinnamoventris*** Blyth

1842. *Sitta cinnamoventris* Blyth, *J. Asiat. Soc. Beng.*, 11 : 459 (Darjeeling = Darjiling, Darjiling dist., West Bengal, India).

1973 *Sitta castanea cinnamoventris,* Ali and Ripley, vol 9 : 213.

Common name : Eastern chestnutbellied Nuthatch (English).

Material examined : Ri-Bhoi Hills district : 1 ♂ Umsa Nong-kharai near Nongpoh, coll. A. N. Fernandez, 21.iii. 1957.

Diagnostic characters : In male, back bluish slaty. Malar patch white. A black band from lores to upper back. Under tail-coverts with broad white subterminal band. Underparts chestnut-brown. In female, similar to male, but underparts cinnamon.

Measurements : 1 ♂ : Wing 84 ; tail 44 ; bill 22.

Distribution : India : Meghalaya (East Khasi Hills district and Ri-Bhoi Hills district) : Arunachal Pradesh, Assam, Manipur, Mizoram, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan and Nepal.

Remarks : Godwin-Austen (1870, p. 99) got it from the Khasi Hills. Hume (1888, p. 86) collected this bird from Shillong, the East Khasi Hills.

492. ***Sitta formosa*** Blyth

1843. *Sitta formosa* Blyth, *J. Asiat. Soc. Beng.*, 12 : 938 (Darjeeling = Darjiling, Darjiling dist., West Bengal, India.)

1973. *Sita formosa,* Ali and Ripley, vol. 9 : 223.

Common name : Beautiful Nuthatch (English).

Material examined : Nil.

Diagnostic characters : Size equal to sparrow. Upper back and crown black with brilliant blue and lilac streaks; black wing with white bars and blue outer edge and shoulder. Rump pale blue, blue black tail with white subterminal spots. Chin and upper throat creamy white, rest of lower parts rufous.

Distribution : India : Meghalaya : Arunachal Pradesh, Assam, Manipur, Mizoram, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Nepal and extends last to Vietnam.

Remarks : Ripley (1982, p. 508) reported this bird from Meghalaya.

493. ***Sitta frontalis frontalis*** Swainson

1820. *Sitta frontalis* Swainson, *Zool,, Ill (i), pl.2* (Ceylon = Sri Lanka).

1973. *Sitta frontalis frontalis,* Ali and Ripley, vol. 9 : 224.

Common name : Velvetfronted Nuthatch (English).

Material examined : Nil.

Diagnostic characters : In male, back purplish blue, forehead velvety black. Orbital skin orange-yellow. Eye yellow. Bill red. Supercilium black. In female, similar to male but without black supercilium.

Distribution : India : Meghalaya (East Khasi Hills district) : Throughout India except Bihar, Jammu & Kashmir, Gujarat, Himachal Pradesh, Haryana, Punjab and Rajasthan. Elsewhere : Bangladesh, Bhutan, Hainan, Indochinese countries and Indonesia.

Remarks : Hume (1888, p. 87) recorded this bird from Shillong, the East Khasi Hills as *Dendrophila frontalis* Horsfield.

Family CERTHIIDAE

Genus ***Certhia*** Linnaeus, 1758

494. ***Certhia familiaris mandellii*** Brooks

1874. *Certhia mandellii* Brooks, *J. Asiat. Soc. Beng.,* 42 : 256 (Sikkim).

1973. *Certhia familiaries mandellii,* Ali and Ripley, vol. 9 : 233.

Common name : Mandelli's Tree Creeper (English).

Material examined : Nil.

Diagnostic characters : Back, crown and wings fulvous-brown spotted with whitish. A white supercilium. A short wing-bar and an oblique buff band across wing. Tail longish, pointed, brown and unbarred. Underparts white.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Himachal Pradesh, Nagaland, Sikkim and Uttar Pradesh. Elsewhere : Bhutan and Nepal.

Remarks : Ali and Ripley (1973, p. 233) reported that Hume obtained it from Shillong, the East Khasi hills.

495. ***Certhia discolor manipurensis*** Hume

1881. *Certhia manipurensis* Hume, *Stray Feathers,* 10 : 151 (Eastern Hills, Manipur).

1973. *Certhia discolor manipurensis,* Ali and Ripley, vol. 9 : 239.

Common name : Manipur Tree Creeper (English).

Material examined : Nil.

Diagnostic characters : Crown and back dark brown with less fulvous. Supercilium fulvous. A short bar and an oblique buff band across wing. Rump feruginous. Tail rufous-brown. Chin, throat and upper breast reddish fulvous; belly and vent more tinged with fulvous.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Manipur and Nagaland. Elsewhere:Burma (Myanmar).

Remarks : Baker (1907, p. 791) reported it from the Khasi Hills.

Family MOTACILLIDAE

Key to the genera of the family Motacillidae

Tail shorter, upper plumage streaked.....***Anthus***

Tail longer, upper plumage unstreaked.....***Motacilla***

Genus ***Anthus*** Bechstein, 1805

496. ***Anthus hodgsoni hodgsoni*** Richmond

1907. *Anthus trivialis hodgsoni* Richmond, in Blackwelder, *Res. in China,* (2) : 493, new name for *Anthus maculatus* Jerdon. 1864, *Bds. India*, 3 : 873 [Type locality from 1863, Ibid., 2 : 228, Calcutta West Bengal, India]. nec. *Anthus maculatus* vieillot.

1973. *Anthus hodgsoni hodgsoni*, Ali and Ripley, vol. 9 : 243.

Common name : Indian Tree Pipit (English) and Musarichi (Hindi).

Material examined : East Garo Hills district : 1 ♀, Rogrenggiri, c. 4 km East of Williamnagar, coll. N. Majumdar, 28.xi. 1988.

Diagnostic characters : Crown and back greenish brown with dark brown streaks, Supercilium whitish. Wing-bars (two) and outer rectrices white. Throat, breast and belly whitish with broad and dark brown streaks.

Measurements : 1 ♀ : Wing 82, tail 62, bill 15.

Distribution : India : Meghalaya (East Garo Hills district) : Throughout India except Kashmir. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Indochinese countries, Japan, Korea, Malaysia and Phillippines.

Remarks : Hume (1888, p. 233) collected this bird from various localities in the Khasi Hills and recorded it as *Anthus maculatus* Hodgson.

497. ***Anthus novaeseelandiae richardi*** Vieillot

1818. *Anthus Richardi* Vieillot, *Nouv. Dict. d'Hist. Nat.*, 26 : 491 (France).

1973. *Anthus novaeseelandiae* richardi, Ali and Ripley, vol. 9 : 251.

Common name : Richard's Pipit (English).

Material examined : Nil.

Diagnostic characters : Size slightly larger than Sparrow. Back and head dark brown marked with fulvous. Tail dark brown with white outer rectrices. Breast buff with brown streaks. Tarsus very long.

Distribution : India : Meghalaya (Khasi Hills district) : Andaman Islands, Andhra Pradesh, Assam, Bihar, Karnataka, Madhya Pradesh, Manipur, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Nepal and Sri Lanka. Breads from Western Siberia east to Korea and the sea of Okhotsk.

Remarks : Hume (1888, p.234) remarked as "habit from many places in the Khasi Hills" He listed it under *Corydalla richardi* Vieillot.

498. ***Anthus novaeseelandiae rufulus*** Vieillot

1818. *Anthus rufulus* Vieillot, *Nouv. Dict. d'Hist. Nat.*, 26 : 494. (Bengal).

1973. *Anthus novaeseelandiae rufulus*, Ali and Ripley, vol. 9 : 253.

Common name : Indian Paddyfield Pipit (English) and Char-chari (Hindi).

Material examined : Nil.

Diagnostic characters : Size slightly larger than Sparrow. Back and head pale brown marked with fulvous. Tail pale brown with white outer rectrices. Breast buff with smaller brown streaks.

Distribution : India : Meghalaya (Khasi Hills district) : All India except Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Kerala, Punjab, Rajashthan, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar),Bhutan, China, Nepal, Thailand and Vietnam.

Remarks : Hume (1888, p. 235) reported it from the Khasi Hills.

499. ***Anthus godlewskii*** (Taczanowski)

1876. *Agrodroma Godlewskii* Taczonowski, *Bull. Soc. Zool. France :* 158 (Argun River, South Dauria).

1973. *Anthus godlewskii*, Ali and Ripley, vol. 9 : 259.

Common name : Blyth's Pipit (English) and Chillu (Hindi).

Material examined : Nil.

Diagnostic characters : Back tawny brown streaked with fulvous. Tail dark brown not pointed. Sides of body plain. Under-parts sandy. Breast streaked. Hind claw exceeding hind toe in length. Legs and feet yellowish.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Karnataka, Kerala, Manipur, Mizoram, Nagaland, Uttar Pradesh and Rajasthan. Elsewhere : In winters, Bangladesh and Sri Lanka.

Remarks : Hume (1888, p. 236) reported it from Shillong, the East Khasi Hills and listed it as *Corydalla striolata* Blyth.

500. ***Anthus cervinus*** (Pallas)

1811. *Motacilla cervina* Pallas, *Zoogr. Rosso-Asiat.*, 2 : 511 (Siberia).

1973. *Anthus cervinus*, Ali and Ripley, vol. 9 : 260.

Common name : Redthroated Pipit (English) and Lal gala Chillu (Hindi).

Material examined : Nil.

Diagnostic characters : Back and wings pale brown, heavily streaked with dark brown. Supercilium buffish. Wing-bar double, whitish. Outer rectrices white. Underparts creamy buff, streaked with dark brown on breast, sides of neck and flanks.

Distribution : India : Meghalaya (Khasi Hills district) : Andaman & Nicobar Islands, Gujarat, Manipur and Punjab. Elsewhere : Pakistan, Burma (Myanmar), Indochinese countries, Indonesia, Hainan, Maldive Islands and Philippines.

Remarks : Godwin-Austen (1870, p. 108) recorded it from the Khasi Hills.

501 ***Anthus roseatus*** Blyth

1847.*Anthus roseatus,* Blyth, *J. Asiat. Soc. Beng.,* 16 : 437 (Nepal).

1982. *Anthus roseatus* Riply : 516.

Common name : Vinaceousbreasted Pipit (English).

Material examined : Nil.

Diagnostic characters : In summer, the crown and back grey with dark brown streak. Supercillium buff. Brown wings with green edges and two pale wing-bars. Tail brown with whitish outer edges. Throat and breast pink or vinaceous buff, belly buffish. In autumn, crown and back olive-brown. Supercilium tinted yellow. Vinaceous on throat and breast, breast with heavy streaks.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Manipur, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, China, Indochinese countries, Nepal and Pakistan.

Remarks : Hume (1888, p. 236) recorded it from Shillong, the East Khasi Hills.

Genus ***Motacilla*** Linnaeus, 1758

502 ***Motacilla indica*** Gmelin

1789. *Motacilla indica* Gmelin, *Syst. Nat.,* 1 : 962, (India, restricted to malabar, by Ripley, 1961).

1973. *Motacilla indica,* Ali and Ripley, vol. 9 : 273.

Common name : Forest Wagtail (English).

Material examined : Nil.

Diagnostic characters : Size equal to Sparrow. Back olive-brown. Tail brown, the outer rectrices white. Supercilium and eye-ring pale. Blackish brown wing with two yellow bands. Chin white; a blackish brown collar across throat and another interrupted band on breast.

Distribution : India : Meghalaya (East Khasi Hills district) : Throughout India. Elsewhere : Bangladesh, Bhutan Myanmar), Burma, Cambodia, Java, Malay Penninsula, Sumatra Thailand and Vietnam.

Remarks : Hume (1888, p. 233) reported it from Shillong, the East Khasi Hills as *Limonidromus indicus* Gmelin.

503. ***Motacilla citreola calcarata*** Hodgson

1836. *Motacilla (Budytes) calcarata* Hodgson, *Asiat. Res.,* 19 : 190. (Nepal).

1973. *Motacilla citreola calcarata,* Ali and Ripley, vol. 9 : 284.

Common name : Blackbacked yellowheaded Wagtail (English), Pilkya (Hindi) and Dopasi (Garo).

Material examined : Nil.

Diagnostic characters : Size equal to Sparrow. Back and rump jet-black. Head and underparts lemon-yellow, sides of breast black. In winter, the back is dark grey.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Bihar, Gujarat and Himachal Pradesh.Elsewhere : Afghanistan, Bangladesh, Burma (Myanmar), Nepal and Pakistan.

Remarks : Hume (1888, p. 232) reported that Godwin-Austen recorded it from the Khasi Hills as *Budytes calcaratus* Hodgson.

504. ***Motacilla cinerea cinerea*** Tunstall

1771. *Motacilla cinerea* Tunstall, *Orn. Brit.* : 2 (type locality fixed as Wycliffe, Yorkshire, England, by Clancey, 1964. *Bull. Brit. Orn. Cl.*, 66 : 28).

1973. *Motacilla cinerea cinerea,* Ali and Ripley, vol. 9 : 285.

Common name : Grey Wagtail (English) and Dokongsi (Garo).

Material examined : Nil.

Diagnostic characters : In male, back and head grey. Upper tail-coverts greenish yellow. Blackish brown tail with white outer edges. Dark brown wings with whitish margins to tertials showing as a prominent 'V' on back (in summer), 'V' is indistinct (in winter). Chin and throat black, breast and belly bright yellow (in summer), throat buffish, belly pale yellow (in winter). In female, similar to male, excepting throat mottled with black (in summer) buff (in winter) and paler underparts.

Distribution : India : Meghalaya (East Khasi Hills district) : Andaman & Nicobar Islands. Arunanchal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Nagaland, Orissa, entire Peninsular India, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Afghanistan, Africa, Bangladesh, British Isles, Burma (Myanmar), China, Indochinese countries, Indonesia, Iran, Japan, Kamchatka, Maldive Islands, Mediterranean region, Pakistan, Philippines, Sri Lanka, Taiwan and Turkestan.

Remarks : Baker (1907, p. 962) procured it at Cherrapoonjee, the East Khasi Hills. Hume (1888, p. 231) collected it from Shillong, the East Khasi Hills and listed it as *Calobates melanope* Pall as.

505. ***Motacilla alba dukhunensis*** Sykes

1832. *Motacilla Dukhunensis* Sykes, *Proc. Zool. Soc. Lond.* : 91 (Dukhun, Poona = Pune, India).

1973. *Motacilla alba dukhunensis,* Ali and Ripley, vol.9 : 288.

Common name : Indian White Wagtail (English) and Dhoban (Hindi).

Material examined : Nil.

Diagnostic characters : Size equal to Bulbul. Back and rump grey; forehead, ear-coverts and round eyes white. Hindcrown and nape black. Wings brown, quills margined with white. Blackish brown tail, outer rectrices white. Chin, throat and upper breast black; lower breast, belly and vent whitish. Sides of breast ashy.

Distribution : India : Meghalaya (East Khasi Hills district); Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, and West Bengal. Wlsewhere : Arabia, Bangladesh, Burma,(Myanmar), Congo, Indochiness countries, Kenya, Nepal, Pakistan, Philippines and Thailand.

Remarks : Hume (1888, p. 223) received it from Shillong, the East Khasi Hills.

506. ***Motacilla alba personata*** Gould

1861. *Motacilla personata* Gould, *Bds. Asia,* 4, pl. 63 (Bengal, India).

1973. *Motacilla alba personata,* Ali and Ripley, vol. 9 : 291.

Common name : Masked Wagtail (English).

Material examined : East Khasi Hills district : 1 unsexed,Cherrapunji, coll. T.D. Soota, 10.ii. 1974.

Diagnostic characters : Size equal to the preceding bird. Back grey; neck, ear-coverts, chin and throat black. Forehead,round eyes, breast and belly white. White on wings more extensive.

Distribution : India: Meghalaya (Khasi Hills district) : Throughout the Indian mainlands. Elsewhere: Bangladesh, Nepal and Pakistan. Breeds in Afghanistan and Turkestan.

Famly DICAEIDAE

Genus ***Dicaeum*** Cuvier, 1817

507. ***Dicaeum agile agile*** (Tickell)

1833. *Fringilla Agilis* Tickell, *J. Asiat. Soc. Beng.*, 2 : 578 (Borabhum-Barahabhum,Puruliya dist. West Bengal and Dholbhum = Dhalbhum, Singhbhum dist., Bihar, India).

1974. *Dicaeum agile agile.,* Ali and Ripley, vol. 10 : 2.

Common name : Indian Thickbilled Flowerpecker (English).

Material examined : Nil.

Diagnostic characters : Small olive green bird with a tail having a terminal white band. Bill very short, thick and horny grey coloured. Breast with greenish white faintly brown streaked.

Distribution :Inida: Meghalaya (West Garo Hills district): Throughout the India mainland except Punjab and Rajasthan. Elsewhere: Bangladesh, Bhutan, Burma (Myanmar), Nepal and Pakistan.

Remarks : Observed it at Kherapara, the West Garo Hills.

508. ***Dicaeum chrysorrheum chrysochlore*** Blyth

1843. *Dicaeum chrysochlore* Blyth, *J. Asiat. Soc. Beng.*, 12 : 1009 (Arracan = Arakan, Burma = Myanmar).

1974. *Dicaeum chrysorrheum chrysochlore,* Ali and Ripley, vol. 10 : 5.

Common name : Yellowvented Flowerpecker (English).

Meterial examined : Nil

Diagnostic characters : Back and head olive-green. Wings and tail dark brown. Chin, throat and breast buffish white streaked with dark brown. Undertail-coverts bright yellow.

Distribution : India: Meghalaya : Assam, Manipur, Mizoram, Nagaland, Sikkim, Tripura and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Indochinese countries, Nepal, Thailand and Vietnam.

Remarks : Ripley (1982, p. 524) reported it from Meghalaya.

509. ***Dicaeum erythrorhynchos erythrorhynchos*** (Latham)

1790. *Certhia erythrorhynchos* Latham, *Index Orn.*, 1 : 299. (India = Bombay *vide* Baker. 1926, ***FBI***, 2nd ed., 3 : 432).

1974. *Dicaeum erythrorhynchos erythrorhynchos,* Ali and Ripley, vol. 10 : 10.

Common name : Tickell's Flowerpecker (English) and Phoolchuki (Hindi).

Material examined : Nil.

Diagnostic characters : Back,head, wing and tail brownish tinge with olive, Chin, throat and breast greyish white. Bill flesh coloured and shorter.

Distribution : India : Meghalaya : (Garo Hills district) : Throughout the Indian mainland except Arunachal Pradesh, Haryana, Jammu & Kashmir, Manipur, Mizoram, Nagaland, Punjab, Rajasthan, Sikkim and Tripura. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) and Nepal.

Remarks : Hume (1888, p. 84) reported that Godwin-Austen procured it from the Garo Hills.

510. ***Dicaeum concolor olivaceum*** Walden

1875. *Dicaeum olivaceum* Walden, *Ann. Mag. Nat. Hist.*, 15 : 401 (Tounghoo, Burma = Myanmar).

1974. *Dicaeum concolor olivaceum,* Ali and Ripley, vol. 10 : 13.

Common name : Plaincoloured Flowerpecker (English).

Material examined : Nil.

Diagnostic characters : Tail, back and wings olive-brown. Underpart greyish white. Bill black. Lores and supercilium pale.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), China, Indochinese countries, Nepal and Thailand.

Remarks : Hume (1888, p. 84) reported this bird from Shillong, the East Khasi Hills.

511. ***Dicaeum cruentatum cruentatum*** (Linnaeus)

1758. *Certhia cruentata* Linnaeus, *Syst.Nat., ed.* 10, 1 : 119 (Benghala = Bengal).

1974. *Dicaeum cruentatum cruentatum*, Ali and Ripley, vol. 10 : 15.

Common name : Scarletbacked Flowerpecker (English).

Material examined : East Garo Hills district : 1 ♀, Maheshkhola, coll. R.K. Ghose, 16.iv. 1986.

Diagnostic characters : In male, back, crown and rump crimson. Wings and tail glossy blue black. Sides of head black. Centre of throat, breast and belly pale buff. Sides of throat black. In female, back and crown olive. Tail black. Wings dark brown. Upper tail coverts crimson.

Messurements : 1 ♀ : Wing 52, tail 32, bill 9.

Distribution : India : Meghalaya (East Garo and Khasi Hills districts) : Arunachal Pradesh, Assam, Manipur, Nagaland and Tripura. Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Indochinese countries and southern China to Fukien.

Remarks : Baker (1977, p. 963) recorded it from the Garo and Khasi Hills.

512. ***Dicaeum ignipectus ignipectus*** (Blyth)

1843. M. *(yzanthe) ignipectus* 'Hodgson' = Blyth, *J. Asiat, Soc. Beng.*, 12 : 983 (Nepal and Bhotan).

1974. *Dicaeum ignipectus ignipectus*, Ali and Ripley, vol. 10 : 17.

Common name : Firebreasted Flowerpecker (English).

Material examined : Nil.

Diagnostic characters : In male, head, back, wings and tail metallic greenish black. Chin, throat and abdomen rich buff. Breast with a scarlet patch and a black patch below it on centre of belly. Vent olive. In female, head, back, wings and tail olive-green. Rump yellow. Underparts pale buff washed olive on sides.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Mizoram, Nagaland, Sikkim and Uttar Pradesh. Elsewhere: Bhutan, Burma (Myanmar), China, Fukien, Hupeh, Indochinese countries and Nepal.

Remarks : Baker (1907, p.963) noted it from the Khasi Hills. Hume (1888, p. 85) reported it from Shillong, the East Khasi Hills, and listed it as *Myzanthe ignipectus* Hodgson.

Family NECTARINIIDAE

Key to the genera of the family Nectariniidae

1. Central rectrices elongated ..... ***Aethopyga***
   Central rectrices not elongated 2
2. Plumage non-metallic ..... ***Arachnothera***
   Plumage of male metallic 3
3. Lower mandible curved downward ..... ***Nectarinia***
   Lower mandible straight or nearly so ..... ***Anthreptes***

Genus ***Anthreptes*** Swainson, 1837

513. ***Anthreptes singalensis rubinigentis*** (Baker)

1930. (23 April, or more probably 14 March). *Chalcoparia singalensis rubinigentis* Baker [Cf. Biswas, *JBNHS* 60 : 684], *Fauna Brit. India., Bds.* 7 : 282, new name for *Chalcoparia singalensis lepida* (Latham), cited in Baker, 1926, FBT 3 : 370 (India, restricted to Cachar), *nec Certhia lepida* Latham, 1790, *nor Certhia lepida* Sparrman, 1787=*Certhia malacensis* Scopoli, 1786.

1974. *Anthreptes singalensis rubinigentis* Ali and Ripley, vol. 10 : 19.

Common name : Rubycheek (English).

Material examined : Nil.

Diagnostic characters : In male, crown and upper back brilliant metallic green. Ear-coverts copper colour, bordered below by a brilliant violet-purple line. Chin, throat and breast rufous. Abdomen and vent lemon-yellow. In female, upper parts olive-green, yellowish on wing. Underparts like male.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts): Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim, and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal and Thailand.

Remarks : Hume (1888, p. 83) reported that Godwin-Austen collected this bird from the Garo Hills and Hume (Ibid) recorded from the Khasi Hills.

Genus ***Nectarinia*** Illiger, 1811

514. ***Nectarinia zeylonica sola*** (Vieillot)

1819. *Cinnyris sola* Vieillot, *Nouv. Dict. d'Hist. Nat.*, 31:512 (Pondichery).

1974. *Nectarinia zeylonica sola,* Ali and Ripley, vol. 10 : 22.

Common name : Indian Purplerumped Sunbird (English), and Shakar Khora (Hindi).

Material examined : Nil.

Diagnostic characters : Male with yellow abdomen; throat metallic purple red and upper tail coverts metallic purple. Back deep chestnut. Female with brown back, more rufous on wing. Throat and flanks greyish white; breast and centre of belly lemon yellow.

Distribution : India: Meghalaya (East Garo Hills district): Throughout Indian mainland except Arunachal Pradesh, Haryana, Jammu & Kashmir, Manipur, Mizoram, Nagaland, Punjab, Rajasthan, Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar) Nepal and Thailand.

Remarks : Seen it at Rongrenggiri, the East Garo Hills.

Genus ***Aethopyga*** Cabanis, 1851

515. ***Aethopyga gouldiae isolata*** Baker

1925. *Aethopyga gouldiae isolata* Baker, *Bull Brit. Orn. Cl.*, 46 : 13 (Manipur).

1974. *Aethopyga gouldiae isolata,* Ali and Ripley, vol. 10 : 40.

Common name : Manipur Yellowbacked Sunbird (English).

Material examined : Nil.

Diagnostic characters : In male, sides of head, neck, supercillum, nape and back crimson. Rump bright yellow. Upper tailcoverts and tail metallic purple-blue. Tail graduated, outer rectrices brown tipped with buffish. Central rectrices greatly elongated. Chin and throat metallic purple-blue. Breast yellow streaked with scarlet. Abdomen and vent olive. In female, head and nape grey, back olive. Rump yellowish. Throat pale grey; breast, belly and vent yellow.

Distribution : India : Meghalaya (Khasi Hills district): Assam, Manipur, Mizoram and Nagaland, Elsewhere: Bangladesh.

Remarks : Hume (1888, p. 81) reported this bird from the Khasi Hills and recorded it as *Aethopyga gouldiae* Vigors.

516. ***Aethopyga nipalensis nipalensis*** (Hodgson)

1836. *Cinnyris Nipalensis* Hodgson, *Ind. rev.*, 1(7) : 273 (Nepal, restricted to Chandragiri Pass, Central Nepal, by Ripley, 1961, Synopsis : 588).

1974. *Aethopyga nipalensis nipalensis*, Ali and Ripley, vol. 10 : 43.

Common name : Nepal Yellowbacked Sunbird (English).

Material examined : Nil.

Diagnostic characters : In male, crown and nape metallic blue-green. A maroon band on upper back and sides of neck. Rump bright yellow; cheeks black, throat and tail metallic blue-green. Breast and abdomen bright yellow streaked with scarlet. In female, olive green on back and light green below. Outer rectrices tipped with white.

Distribution : India : Meghalaya (Khasi Hills district) : Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bhutan and Nepal.

Remarks : Hume (1888, p. 82) reported this bird from the Khasi Hills. Koelz (1952) recorded from Mawryngkneng, the Khasi Hills and described it as *Aethopyga nipalensis ripleyi.*

517. ***Aethopyga saturata assamensis*** (McClelland)

1839. *Cinnyris Assamensis* McClelland, *Proc. Zool. Soc. Lond.*, 167 (Assam restricted to neighbourhood of Sadiya by Deignan, 1948, *J. Washington Acad., Sci.*, 38 : 22).

1974. *Aethopyga saturata assamensis*, Ali and Ripley, vol. 10 : 46.

Common name : Assam Blackbreasted Sunbird (English).

Material examined : Nil.

Diagnostic characters : In male, back and sides of neck crimson-brown. Crown and nape metallic purple. Wings blackish brown. Tail metallic purple. The two central rectrices elongated. Throat and breast dull blackish. Abdomen and vent greyish olive. In female, general colouration olive-green.

Distribution : India : Meghalaya (Garo Hills and Khasi Hills districts) : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh, Burma (Myanmar) and China.

Remarks : Hume (1888, p. 82) reported this bird from the Khasi Hills. Koelz (1953) recorded this bird from near Nokrek, Garo Hills and described it as *Aethopyga saturata ariel.*

518. ***Aethopyga siparaja seheriae*** (Tickell)

1833. *Nectarinia seheriae* Tickell, *J. Asiat. Soc. Beng.*, 2 ; 577. (near Seheria in Borabhum, Bihar, India).

1974. *Aethopyga siparaja seheriae*, Ali and Ripley, vol. 10 : 47.

Common name : Indian yellowbacked Sunbird (English).

Material examined : Ri-Bhoi Hills district : 1 ♂ Byrnihat, coll. Z. S. I. Party, 25.v.1959; 4 ♂ Umsa Nongkharai near Nongpoh, coll. Z.S.I. party and H. Khajuria, 8 and 19.xii. 1956; coll. P. D. Gupta, 14.x. 63.

Diagnostic characters : Male with metallic green on crown, dark crimson on back and sides of neck; rump bright yellow. Tail metallic green, the two central rectrices elongated. Chin, throat and breast scarlet; belly yellowish olive. Female entirely olive, more yellowish below.

Measurements : 2 ♂ : Wing 56, 58; tail 64, 68; bill 21, 22.

Distribution : India : Meghalaya (Khasi Hills and Ri-Bhoi Hills districts) : Bihar, Himachal Pradesh, Madhya Pradesh, Orissa, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere . Bangladesh, Bhutan and Nepal.

Remarks : Hume (1888, p. 80) reported it from near Shillong. Baker (1907, p. 962) recorded it from the Khasi Hills.

519. ***Aethopyga siparaja labecula*** (Horefield)

1839. *Cinnyris labecula* Horsfield, *Proc. Zool. Soc. Lond :* 167 (Assam).

1974. *Aethopyga siparaja labecula,* Ali and Ripley, vol. 10 : 49.

Common name : Assam Yellowbacked Sunbird (English).

Material examined : Nil.

Diagnostic characters : In male, crown and tail metallic green. Back and sides of neck dark crimson. Rump bright yellow. Two central rectrices elongated. Chin, throat and breast scarlet with metallic purple malar streaks. Belly yellowish olive. In female entire plumage olive. Underparts more yellowish.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur and Nagaland. Elsewhere : Bangladesh and Bhutan.

Remarks : Hume (1880, p. 80) reported it from near Shillong, the East Khasi Hills as *Aethopyga scheriae* Hume.

520. ***Aethopyga ignicauda inicauda*** (Hodgson)

1836. *(Cinnyris) Ignicauda* Hodgson, *Ind. Rev.*, 1(7) : 273 (Nepal).

1974. *Aethopyga ignicauda ignicauda,* Ali and Ripley, vol. 10 : 50.

Common name : Firetailed Yellowbacked Sunbird (English).

Material examined : Nil.

Diagnostic characters : In male, crown metallic purple, sides of crown from eye and back as well as tail-coverts and tail scarlet. Rump yellow. Wings olive in colour. Throat metallic purple, breast and abdomen yellow washed with orange. Elongated central pair of rectrices bright crimson. Female olive, more yellow on rump and belly.

Distribution : India : Meghalaya (East Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh and China.

Remarks : Hume (1888, p. 81) obtained this bird from Shillong, the East Khasi Hills.

Genus ***Arachnothera*** Temminck, 1826

521. ***Arachnothera longirostris longirostris*** (Latham)

1790. *Certhia longirostris* Latham, *Index Orn.*, 1 : 299 (Bengal, restricted to Sylhet, Bangladesh, by Baker, *J. Bombay nat. Hist. Soc.*, 28 : 124.

1974. *Arachnothera longirostris longirostris,* Ali and Ripley, vol. 10 : 52.

Common name : Little Spiderhunter (English).

Material examined : Jaintia Hills district : 1 ♂ Umkiang, coll. A. K. Mandal, 26.xi. 1988. Ri-Bhoi Hills district : 1 ♂ Nongpoh ca 3.5 km S. E. of Nongpoh Dak Bunglow, coll. Z. S. I. Party, 9.V.1949.

Diagnostic characters : Back and wings olive. Tail dark brown tipped with white. Chin, throat and upper breast greyish white. Lower belly and vent yellow with orange tufts.

Measurements : 1 ♂ : Wing 66 ; tail 46 ; bill 37.

Distribution : India : Meghalaya (Jaintia Hills and Ri-Bhoi Hills districts) : Andhra Pradesh, Arunachal Pradesh, Assam, Goa, Karnataka, Kerala, Manipur, Orissa, Tamil Nadu, Tripura and West Bengal. Elsewhere : Bangladesh, Burma (Myanmar) and Thailand.

522. ***Arachnothera magna magna*** (Hodgson)

1836. *(Cinnyris) Magna* Hodgson, *Ind. Rev.*, 1(17) : 272 (Nepal).

1974. *Archnothera magna magna,* Ali and Ripley, vol. 10 : 54.

Common name : Streaked Spiderhunder (English).

Material examined : Nil.

Diagnostic characters : A small bird with streaked yellowish olive in colour. Bill very long, stout and curved; black. Legs yellow; tail tipped with a blackish subterminbal band. Throat, breast and abdomen very pale yellow with bold black shaft-streaks.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland and Sikkim. Elsewhere : Bangladesh, Bhuta, China and Nepal.

Remarks : Godwin-Austen (1870, p. 98) reported it from the Khasi Hills.

Family ZOSTEROPIDAE

Genus ***Zosterops*** Vigors and Horsfield, 1827

523. ***Zosterops palpebrosa palpebrosa*** (Temminck)

1824. *Sylvia palpebrosa* Temminck, *Pl. Col. d'Ois* 49, pl. 293, fig. 3 (Bengale=Bengal, India).

1974. *Zosterops palpebrosa palpebrosa,* Ali and Ripley, vol. 10 : 57.

Common name : India White eye (English).

Material examined : East Garo Hills district ; 2 ♀, Rongrenggiri, coll. 29.xi.1986.. Majumdar. Ri-Bhoi Hills district : 1 unsexed, Nongpoh, coll. R. V. Sherad, 14.v. 1949; 1 unsexed, Nongpoh, coll. R. V. Sherard, 14.v. 1949; 1 ♂ and 2♂ Umsa Nongkharai, coll. H. Khajuria, 19 and 21.xiii. 1956.

Diagnostic characters : A yellow-olive bird with a very district white eye-ring. Throat and undertail-coverts bright yellow; breast greyish white and belly whitish.

Measurements :	Wing	Tail	Bill
1 ♂	53	36	12
2 ♀	50(2)	35, 36	12(2)

Distribution : India : Meghalaya (East Garo Hills, Khasi Hills and Ri-Bhoi Hills districts) : Throughout the Indian mainland excepting Andhra Pradesh, Kerala and Tamil Nadu. Elsewhere : Bangladesh, Burma (Myanmar), China, Indochinese countries, Nepal, Pakistan and Tibet.

Remarks : Godwin-Austen (1870, p. 109) recorded it from the Khasi Hills.

Family PLOCEIDAE

Key to the genera of the family Ploceidae

1. Bill broad at base and stout; culmen not curved ..... ***Lonchura***

   Bill short and stout; culmen slightly curved..... 2

2. Both sexes exhibit a double half hour-glass shaped rufous patch on the base of primaries ***Passer***

   No double half hour-glass shaped patch..... 3

3. 1st primary minute; 3rd and 4th longest..... ***Estrilda***

   1st primary minute; 2nd, 3rd, 4th and 5th longest..... ***Ploceus***

Genus ***Passer*** Brisson, 1760

524. ***Passer domesticus indicus*** Jardine & Selby

1835. *Passer indicus* Jardine & Selby, *Ill. Orn.* 3 pl. 118 (India, restricted to Bangalore district, Karnataka by Kinnear, 1925, *Ibis* : 751).

1974. *Passer domesticus indicus,* Ali and Ripley, vol. 10 : 63.

Common name : Indian House Sparrow (English); Churi (Hindi) and Dochok (Garo).

Material examined : South Garo Hills district : 1 ♂, Baghmara, coll. N. Majumdar, 24 .xi. 1988. East Khasi Hills district : 1 ♀, Kyrdem Kulai, Shillong, coll. E. D. Albinus, 17.i.1979.

Distribution : Male with crown grey; sides of crown behind eye, sides of neck and upper back chestnut. Rufous-chestnut with black streaks on back. Shoulder patch white; wing rufous. Rump grey-brown; tail dark-brown. Sides of throat white; centre of throat and breast black. Abdomen greyish white. Female with greyish brown streaked with fulvous and dark brown on back, throat, breast and abdomen brownish white.

Measurements :	Wing	Tail	Bill
1 ♂	72	54	14
1 ♀	73	54	13

Distribution : India : Meghalaya : (South Garo Hills district and East Khasi Hills district) : Throughout the Indian Union including Andamans except Jammu & Kashmir and Sikkim. Elsewhere : Arabia, Bangladesh, Burma (Myanmar), Pakistan and Sri Lanka. Introduced in South Africa, Comoro and the Mascarene Islands.

Remarks : Baker (1907, p.961) reported it from the Garo Hills and recorded as *Passer domesticus* Linnaeus.

525. ***Passer montanus malaccensis*** Dubois

1885. *Passer malaccensis* Dubois, *Faune Ill. Vert. Belg. Ois.* 1 : 572 (Malacca).

1974. *Passer montanus malaccensis,* Ali and Ripley, vol. 10 : 71.

Common name : Malay Tree Sparrow (English) and Chhotigouriya (Hindi).

Material examined : Nil.

Diagnostic characters : Back brown streaked with black; crown and nape chocolate -brown. Ear-coverts with black patch. Sides of head white. Chin and centre of throat black. Sides of throat, breast and belly greyish white.

Distribution : India : Meghalaya (East Khasi Hills district) : Assam, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Indochinese countries, Indonesia and Nepal.

Remarks : Baker (1907, p. 961) reported it from the Garo and Khasi Hills. Hume (1888, p. 275) recorded it from Shillong the East Khasi Hills as *Passer montanus* Linnaeus.

526. ***Passer rutilans cinnamomeus*** (Gould)

1835. *Pyrgita cinnamomea* Gould, *Proc. Zool. Soc. Lond.* : 185 ('apud montes Himalayenses', restricted to NW. Himalays by Ticehurst, 1927, JBNHS, 32 : 347)

1974. *Passer rutilans cinnamomeus,* Ali and Ripley, vol. 10 : 75.

Common name : Himalayan Cinnamon Tree Sparrow (English) and Lalgouriya (Hindi).

Material examined : East Khasi Hills district : 2 ♂ and 1 ♀, Risa Colony, Shillong, coll. R. K. Rail, 6.ii. 1979.

Diagnostic characters : In male, back bright rufous-chestnut streaked with black. White wing-bar with narrow and broad. Chin and centre of throat black; sides of throat pale yellow. In female, back brown streaked with dark brown. A prominent whitish supercilium and white wing-bars. Underparts pale yellowish ashy.

Measurements :	Wing	Tail	Bill
2 ♂	70, 74	50 (2)	13 (2)
1 ♀	71	48	13

Distribution : India : Meghalaya (East Khasi Hills district) : Northern India from Arunachal Pradesh to Jammu & Kashmir. Elsewhere : Bhutan, Nepal and Tibet.

Remarks : Hume (1888, p. 275) reported this bird from Shillong, the Khasi Hills.

527. ***Passer rutilans intensior*** Rothschild

1922. *Passer rutilans intensior* Rothschild, *Bull. Brit. Orn. Cl.*, 43 : 11 (Mekong Valley).

1974. *Passer rutilans intensior,* Ali and Ripley, vol. 10 : 77.

Common name : Yunnan Cinnamon Tree Sparrow (English).

Material examined : Nil.

Diagnostic characters : In male, head, back and wings bright rufous-chestnut streaked with black. A broad and a narrow white wing-bar. Chin and centre of throat black; sides of throat pale yellow. Breast and vent yellowish grey; centre of belly pale yellow. In female, head, back, wings and tail brown streaked with dark brown. Supercilium and wing-bars white. Under-parts pale yellowish ashy.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Manipur, Mizoram and Nagaland. Elsewhere : Burma (Myanmar), China and Vietnam.

Remarks : Ali and Ripley (1974, p. 77) recorded it from Khasi Hills.

Genus ***Ploceus*** Cuvier, 1816

528. ***Ploceus philippinus burmanicus*** Ticehurst

1932. *Ploceus infortunatus burmanicus* Ticehurst, *Bull. Brit. Orn. Cl.*, 52 : 105 (Akyab).

1974. *Ploceus philippinus burmanicus,* Ali and Ripley, 10 : 93.

Common name : Indian Baya (English) and Baya (Hindi).

Material examined : Nil.

Diagnostic characters : In male, crown yellow. Back dark brown streaked with yellow. Throat whitish grey. Breast and abdomen cream buff. In female, back and crown yellowish buff streaked with dark brown. Throat white, breast yellowish buff.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Bihar, Tripura and West Bengal : Elsewhere : Bangladesh, Burma (Myanmar) and Nepal.

Remarks : Godwin-Austen (1870, p. 110) recorded it from the Khasi Hills and listed it as *Ploceus baya* Blyth.

Genus ***Estrilda*** Swainson, 1827

529. ***Estrilda amandava amandava*** (Linnaeus)

1758. *Fringilla Amandava* Linnaeus, *Syst. Nat.*, ed. 10, 1 : 180 (Eastern India, restricted to Calcutta, Calcutta district, West Bengal, India, by Baker, 1921, *J. Bombay nat. Hist. Soc.*, 27 : 725).

1974. *Estrilda amandava amandava,* Ali and Ripley, vol. 10 : 101.

Common name : Red Munia (English) and Lal Munia (Bengali).

Material examined : Nil.

Diagnostic characters : Male brownish crimson. Wings dark brown with a few small white spots. Tail dark brown with whitish tip. Throat and upper breast crimson, spotted with white. Female brown with white spots on wings, upper tail-coverts crimson spotted with white. Throat and breast greyish buff.

Distribution : India : Meghalaya (Khasi and Garo Hills districts) : Throughout the Indian mainland except Kerala, Manipur, Mizoram and Nagaland. Elsewhere : Bangladesh, Pakistan, Nepal, China, Indochinese countries and Sunda Islands.

Remarks : Godwin-Austen (1872, p. 142) recorded this bird from the Garo and Khasi Hills.

Genus ***Lonchura*** Sykes, 1832

530. ***Lonchura striata acuticauda*** (Hodgson)

1836. *M. (unia) Acuticauda* Hodgson, *Asiat. Res.*, 19 : 153 (Nepal).

1974. *Lonchura striata acuticauda,* Ali and Ripley, vol. 10 : 107.

Common name : Whitebacked Munia (English) and Shakari Munia (Hindi).

Material examined : Nil.

Diagnostic characters : Back brown with very fine pale shaft-streaks. Rump white. Fore head, wings and tail blackish brown. Throat and breast blackish brown; belly creamy white.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur, Nagaland, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Bangladesh, Bhutan and Burma (Myanmar), Nepal and Thailand.

Remarks : Godwin-Austen (1870, p. 27) recorded it from Khasi Hills and listed it as *Amadina acuticauda* Hodgson.

531. ***Lonchura punctulata subundulata*** (Godwin-Austen)

1872. *Munia subundulata* Godwin-Austen, *Proc. Zool. Soc. Lolnd.* : 48 (Manipur Valley).

1974. *Lonchura punctulata subundulata,* Ali and Ripley, vol. 10 : 115.

Common name : Burmese Spotted Munia (English).

Material examined : Nil.

Diagnostic characters : Head black. Back, wings and chest rufous-chestnut. Rump darker chestnut Centre of belly and under tail-coverts black.

Distribution : India : Meghalaya (East Khasi Hills district) : Assam. Elsewhere : Bangladesh and Burma (Myanmar).

Remarks : Hume (1888, p. 272) reported this bird from Shillong and Mawphlang, the East Khasi Hills and other places in the Khasi Hills and listed it as *Amadina subundulata* Godwin-Austen. Koelz (1954) also reported this birds from Mawphlong, the East Khasi Hills and described it as *Lonchura punctulata catervaria.*

532. ***Lonchura malacca rubroniger*** (Hodgson)

1836. *M. (unia) Rubroniger* Hodgson, *Asiat. Res.*, 19 : 153 (Nepal).

1974. *Lonchura malacea rubroniger,* Ali and Ripley, vol. 10 : 116.

Common name : Nepal Blackheaded Munia (English).

Material examined : Nil.

Diagnostic characters : Back, wings and tail rufous chestnut. Head black. Rump chestnut. Throat and breast black. Upper belly and sides chestnut. Centre of belly and undertail-coverts black.

Distribution : India : Meghalaya (Khasi Hills district) : Bihar, Punjab and Uttar Pradesh. Elsewhere : Nepal.

Remarks : Hume (1888, p. 272) recorded it from Shillong, the East Khasi Hills and other places in the Khasi Hills and reported as *Amadina rubronigra* Hodgson.

533. ***Lonchura malacca atricapilla*** (Vieillot)

1807. *Loxia atricapilla* Vieillot, *Hist. nat. Ois. Chanteurs :* 84, pl. 53 ('Les Grandes-Indes', restricted to Lower Bengal by Robinson & Kloss, 1924, *J. Nat. Hist. Soc. Siam* 5 : 362).

1974. *Lonchura malacca atricapilla,* Ali and Ripley, vol. 10 : 117.

Common name : Eastern Blackheaded Munia (English).

Material examined : Nil.

Diagnostic characters : Crown black and rest of upper parts rufour-chestnut; rump darker chestnut. Throat and breast black; upper and sides of belly chestnut white. Centre and undertail-coverts black. Upper tail-coverts golden yellow. Tail deep reddish brown and back slightly paler.

Distribution : India : Meghalaya (South Garo Hills districts) : Assam, Bihar, Manipur, Orissa and West Bengal. Elsewhere : Bangladesh, China and Nepal.

Remarks : Observed it near at Baghmara, the South Garo Hills.

Family FRINGILIDAE

Key to the genera of the family Fringilidae

1. In male, plumage mainly blackish ..... ***Mycerobas***

   In male, plumage mainly reddish 2

2. Plumage of male predominantly crimson 3

   Plumage of male entirely brilliant scarlet ..... ***Haematospiza***

3. In female, rump yellow ..... ***Propyrrhula***

   In female, rump olive-brown ..... ***Carpodacus***

Genus ***Mycerobas*** Cabanis, 1847

534. ***Mycerobas melanozanthos*** (Hodgson)

1836. *Coc. (cothraustes) Melanozanthos* Hodgson, *Asiat. Res.*, 19 : 150 (Nepal).

1974. *Mycerobas melanozanthos,* Ali and Ripley, vol. 10 : 130.

Common name : Spottedwinged Grosbeak (English).

Material examined : Nil.

Diagnostic characters : In male, entire head, upper back, wings and tail blackish. Whitish spots on secondaries and a white wing patch. Breast, abdomen and vent deep yellow. In female, like male, but crown, nape and back streaked with yellow. Under-parts yellow boldly streaked with blackish.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Himachal Pradesh, Jammu & Kashmir, Manipur, Mizoram, Nagaland, Sikkim and Uttar Pradesh. Elsewhere : Bhutan, Burma, China, Thailand and Tibet.

Remarks : Baker (1907, p. 961) recorded it from the Kha]si Hills.

Genus ***Carpodacus*** Kaup, 1829

535. ***Carpodacus erythrinus roseatus*** (Blyth)

1842. *Pyrrhula roseata* 'Tickell' = Blyth, *J. Asiat. Soc. Beng.*, 11 : 461 ('Sold....in Calcutta, Calcutta district, West Bengal, India).

1974. *Carpodacus erythrinus roseatus*, Ali and Ripley, vol. 10 : 164.

Common name : Indian Rosefinch (English) and Lal Tuti (Hindi).

Material examined : Nil.

Diagnostic characters : In male, crown crimson; back and wings crimson and brown. Rump dark crimson; checks pink; chin, throat and breast crimson becoming paler on flanks and belly. In female, olive brown back with two pale wing bars. Throat whitish with brown streaks. Breast streaked with brown; belly whitish.

Distribution : India : Meghalaya (Khasi Hills district) : Throughout the Indian mainland except Himachal Pradesh and Jammu & Kashmir. Elsewhere : Nepal, Bangladesh, Burma (Myanmar), Indochinese countries, China and Tibet.

Remarks : Hume (1888, p. 286) reported this bird from several places in the Khasi Hills and listed as *Carpodacus erythrinus* Pallas.

Genus ***Propyrrhula*** Hodgson, 1844

536. ***Propyrrhula subhimachala*** (Hodgson)

1936. *Corythus ? subhimachala* Hodgson, *Asiat. Res.*, 19 : 152 (Nepal; northern region; in winter found in the central region).

1974. *Propyrrhula subhimachala*, Ali and Ripley, vol. 10 : 192.

Common name : Redheaded Rosefinch (English).

Material examined : Nil.

Diagnostic characters : In male, a crown, nape, sides of neck and back brown washed with dull crimson. Forehead, supercilium and rump crimson. Shoulder and wing-bar reddish. Throat and breast crimson with whitish spots. Abdomen and vent grey. In female, crown and back scalloped brown and olive. Forehead and supercilium orange-yellow. Nape and sides of neck olive. Rump yellowish olive. Throat and breast yellow with dark mottling.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Manipur and Sikkim. Elsewhere : China.

Remarks : Ali and Ripley (1974, p. 192) reported it from Khasi Hills.

Genus ***Haematospiza*** Blyth, 1845

537 ***Haematospiza sipahi*** (Hodgson)

1836. *C. (Orythus) Sipahi* Hodgson, *Asiat. Res.*, 19 : 151 (Nepal).

1974. *Haematospiza sipahi*, Ali and Ripley, vol. 10 : 194.

Common name : Scarlet Finch (English).

Material examined : Nil.

Diagnostic characters : In male, entire head, back, rump and under parts brilliant scarlet. A darker line through eye. Bill yellow. In female, back, wings and tail dark brown scalloped with yellowish olive. Rump bright yellow. Underparts dark brown scalloped with olive on throat and with greyish on breast.

Distribution : India : Meghalaya (Khasi Hills district) : Arunachal Pradesh, Assam, Sikkim, Tripura, Uttar Pradesh and West Bengal. Elsewhere : Bhutan, Nepal and China.

Remarks : Godwin-Austen (1870, p. 110) recorded this bird from the Khasi Hills.

Family EMBERIZIDAE

Key to the genera of the family Emberizidae

Crown with a well developed crest.....***Melophus***

Crown without crest.....***Emberiza***

Genus ***Emberiza*** Linnaeus, 1758

538. ***Emberiza fucata arcuata*** Sharpe

1888. *E. (emberiza) arcuata* Sharpe, *Cat. Bds. Brit. Mus.*, 12 : 494 (Himalayas, restricted to Simla by Baker, 1926, *FBI* 3 : 199).

1974. *Emberiza fucata arcuata*, Ali and Ripley, 10 : 225.

Common name : Indian Greyheaded Bunting (English) and Patther-Chiria (Hindi).

Material examined : Nil.

Diagnostic characters : In male, back rufous-brown densely streaked with black. Crown and nape grey streaked with black. Ear-coverts chestnut. Rump rufous. Wings brown. Throat and upper breast white with black moustachial stripes. Breast black gorget. Lower breast chestnut. In female, similar to male but paler and duller.

Distribution : India : Meghalaya (Khasi Hills district) : Assam, Himachal Pradesh, Jammu & Kashmir, Sikkim, Uttar Pradesh and West Bengal. Elsewhere : Afghanistan, Burma (Myanmar), China Nepal and Pakistan.

Remarks : Baker (1907, p.961) reported it from Khasi hills.

539. ***Emberiza pusilla*** Pallas

1776. *Emberiza pusilla* Pallas, *Reise Russ Reichs*, 3 : 697 (Transbai-kalian Alps).

1974. *Emberiza pusilla*, Ali and Ripley, vol. 10 : 228.

Common name : Little Bunting (English).

Material examined : West Garo Hills district : 1 ♀, Kherapara, coll. N. Majumdar, 21.xi. 1988.

Diagnostic characters : Size slightly smaller than the House Sparrow. In male, two broad black stripes on either side of crown, a rufous median coronal stripe in between; outer rectrices white. Back

rufous brown, streaked with blackish. Chin rufous; throat and belly-white streaked with black. Female similar to male but dull in colour.

Measurements : 1 ♀ : Wing 72, tail 57, bill 12.

Distribution : India : Meghalaya (East Khasi Hills district and West Garo Hills districts) : Andaman Islands, Arunachal Pradesh, Assam, Manipur, Nagaland and Sikkim and West Bengal. Elsewhere : Bangladesh, Bhutan, Burma (Myanmar), Nepal, Northern Indochinese countries and Southern China. Breeds in Tundra and Forest Tundra of Eurasia from Finland to the sea of Okhotsk.

Remarks : Godwin-Austen (1872, p. 272) recorded it from the base of the Garo Hills. Hume (1888, p. 280) also recorded it from Shillong, the East Khasi Hills.

Genus ***Melophus*** Swainson, 1837

540. ***Melophus lathami*** (Gray)

1831. *Emberiza lathami* Gray, *Zool. Misc.*, 1 : 2 (Canton, Kwangtung).

1974. *Melophus lathami,* Ali and Ripley, vol. 10 : 232.

Common name : Crested Bunting (English) and Patthar-Chiria (Hindi).

Material examined : Nil.

Diagnostic characters : In male, crown with long, pointed black crest. Back and tail black. Wings chestnut. In female, crest shorter. Back olive-brown with dark brown streaks. Wing edges and outer rectrices rufous.

Distribution : India : Meghalaya : Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Madhya Pradesh, Maharashtra, Manipur, Nagaland, Rajasthan, Sikkim, Uttar Pradesh, Tripura and West Bengal. Elsewhere : Pakistan, Nepal, Bhutan and Bangladesh.

Remarks : Ali and Ripley (1974, p. 233) reported it from Meghalaya.

SUMMARY

(1) A list of 541 species and subspecies based on the collection present in the Zoological Survey of India, Calcutta and Eastern Regional Station, Z. S. I., Shillong as well as from literature is given from Meghalaya. It belongs to 233 genera, 57 families and 18 orders.

(2) The family Muscicapidae with194 species and subspecies forms the largest group in the bird fauna of Meghalaya State.

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REPTILIA

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INTRODUCTION

Reptiles are lung breathing vertebrates originally with two pairs of limbs each with five clawed fingers and digits. The skull joint to the vertebral column is effected by a single condyle and the pelvic girdle is connected to two or more vertebrae. The lower jaw on either side consists of more than one bone element. Body is covered with horny scales and plates and are devoid of feathers and hair. They are "Poikilothermic" oviparous or ovoviviparous. Reptiles are the first true-land animals and reached the peak of their evolutionary development during the Mesozoic era -a period rightly called the "Golden Age of Reptiles" All that reminds us today of the gigantic dinosaurs that once ruled the earth, are the few crocodiles, turtles, and monitor lizards. Reptiles being true land animals are basically independent of water as an environment. Some of them are secondarily amphibious but almost all of them return to the land to lay their eggs or to bear their young.

The present day reptiles are grouped under four orders containing about 3000 species of Lizards, about 2800 species of snakes, 220 species of turtles, 21 species of crocodilians and a single species of Rhynchocephalian, the 'tuatara'. The 'poikilothermic' nature of reptiles is a vital factor that affects their distribution and they tend to concentrate on the tropics. Of the 6000 or so reptiles distributed over the world, about 430 are found in India.

Reptiles are found on land and water, in and around human habitations, inside houses and outhouses; under stones and in between crevices of rocks, under piles of logs, on bark, branches of trees and on bushes; in cultivated and non-cultivated land; in fields, thin and thick forests; deserts; ponds; lakes, streams; rivers; sea and almost anywhere.

COLLECTION, PRESERVATION AND IDENTIFICATION

Since the study of many characters lead to the identification of specimens, care should be taken not to damage or mutilate them while collecting. Preserving the material in 90% alcohol will be ideal. Varying strengths of 5% to 10% formalin is also used as a preservative.Larger specimens could be suitably stuffed and maintained.

Identification of Testudines is greatly dependent on the nature and pattern of head and shell and the characters of the limbs. Lizards are identified with reference to their scale characters, body shape and measurements, colour and presence or absence of spines and tubercles (Plate II). Scale characters especially that of the head count a great deal in the identification of snakes (Plate III & IV). The structure of hemipenis also helps as a specific character in certain cases.

Meghalaya state with an area of 22, 429 Km2 interspersed with high and low hills, mountains, meadows and valleys; rivers, streams, lakes and ponds, lies in between 25° 26° N.latitude and 90° 92° 45' E longitude. It is presently divided into seven districts for administrative purposes, namely :

1. East Khasi Hills,
2. West Khasi Hills,
3. Ri Bhoi
4. East Garo Hills,
5. West Garo Hills,
6. South Garo Hills,
7. Jaintia Hills.

The fauna of Meghalaya is greatly influenced by Indo-Chinese elements. The reptile fauna comprises of 12 species of turtles and tortoises, 26 species of lizards and 56 species of snakes.

Smith (1931, 1935 and 1943) reported many species from the then Assam, which included the whole of North-East India.

Shillong, Cherrapunjee and Khasi Hills were mentioned for type localities. However, certain species reported to have been originally described from Meghalaya are no more traceable.

The present study material is made available by various surveys conducted at random within the state by the Eastern Regional Station of the Zoological Survey of India over a span of 33 years. Other than the above, reptile specimens studied from various institutions in Meghalaya also formed valuable reference.

Order Testudines

Turtles and Tortoises

The earliest record of Testudines is from the Triassic. Of about 22 families then, 12 survive today. India has six of the ten families of the sub-order Cryptodira distributed both over the land and the ocean. In general case, a turtle has a shell with two halves, the dorsal carapace and the ventral plastron which are covered by horny shields (Plate I). There are, in typical cases, 13 shields on the carapace and 12 on the plastron. On the carapace they are called the vertabrals, costals and marginals and on the plastron there are the paired gulars, humerals, pectorals, abdominals, femorals and anals. The marginals border the shell dorsally. Most turtles are able to withdraw head and limbs into the shell for protection. All turtles are oviparous and many face a threat to their survival due to the unscrupulous killing for their flesh and consumption of their eggs by man and other animals. Of the 220 species of Testudines found in the world, 32 are distributed in India (Animal Resources of India,1991). Meghalaya has 12 species.

Order Squamata

Lizards and Snakes

The order Squamata contains two sub-orders: Sauria, comprising the Lizards and Serpentes comprising the snakes. In general case, a lizard has a slender body with two pairs of well developed limbs and tail. The body is covered with scales and unlike snakes they have an external ear opening. Most lizards are insectivorous and oviparous. Barring the large sized monitor lizards and the spiny tailed lizards which are killed for flesh and skin, the rest of the group is comparatively safe with man in India. About 3000 species of lizards occur in the world. India has about 156 species and 26 species are represented in Meghalaya.

Snakes are the most popular of the present day reptiles. The lack of limbs, movable eyelids and external ears is characteristic of them. Their ability to adapt themselves to diverse ecological niches available on earth is remarkable. They vary greatly in size from a few millimeters to nearly 10 meters in length. There are about 2800 species of snakes in the world. India has 237 species (Animal Resources of India, 1991) and 56 species are represented in Meghalaya.

SYSTEMATIC LIST OF REPTILES REPORTED FROM MEGHALAYA

Order - 1 TESTUDINES

Family 1 EMYDIDAE

1. *Hardella thurgi* (Gray)
2. *Kachuga dhongoka* (Gray)
3. *K. sylhetensis* (Jerdon)
4. *K. tecta* (Gray)
5. *Geoclemys hamiltoni* (Gray)
6. *Cyclemys dentata* (Gray)
7. *C. mouhoti* (Gray)
8. *Melanochelys tricarinata* (Blyth)

Family 2 TESTUDINIDAE

9. *Geochelone elongata* (Blyth)
10. *G. emys.* (Schlegel & Muller)

Family 3 TRIONYCHIDAE

11. *Lissemys punctata punctata* (Lacepede)
12. *Trionyx hurum* (Gray)

Order - 11 SQUAMATA

Sub-order - (i) SAURIA

Family 4 GEKKONIDAE

13. *Cyrstodactylus khasiensis* (Jerdon)
14. *Cnemaspis jerdoni* (Theobald)
15. *Teratolepis fasciata* (Blyth)
16. *Cosymbotus platyurus* (Scheneider)
17. *Hemidactylus brooki* Gray
18. *H. frenatus* Schelegl
19 *Gekko gecko* (Linnaeus)

Family 5 AGAMIDAE

20. *Ptyctolaemus gularis* Peters
21. *Calotes emma* Gray
22. *C. jerdoni* Gunther
23. *C. maria* Gray
24. *C. versicolor* (Daudin)
25. *Oriocalotes paulus* Smith
26. *Japalura planidorsata* Jerdon

Family 6 SCINCIDAE

27. *Sphenomorphus courcyanum* Annandale
28. *S. indicum indicum* (Gray)
29. *S. maculatum* (Blyth)
30. *Mabuya carinata* (Schneider)
31. *M. macularia* (Blyth)
32. *M. multifasciata multifasciata* (Kuhl)

Family 7 LACERTIDAE

33. *Takydromus sexlineatus khasiensis* Boulenger
34. *T. sexlineatus sexlineatus* Daudin

Family 8 ANGUIDAE

35. *Ophisaurus gracilis* (Gray)
36. *Varanus bengalensis* (Daudin)
37. *V. salvator* (Laurenti)

38. *Varanus flavescens* (Gray)

Sub-order SERPENTES

Family 10 TYPHLOPIDAE

39. *Ramphotyphlops braminus* (Daudin)
40. *Typhlops diardi* Schlegel
41. *T. jerdoni* (Boulenger)
42. *T. tenuicollis* (Peters)

Family - 11 BOIDAE

43. *Python molurus* (Linnaeus)

Family 12 COLUBRIDAE

44. *Ahaetulla prasina* (Boie)
45. *Amphiesma khasiensis* (Boulenger)
46. *A. modesta* (Gunther)
47. *A. parallela* (Boulenger)
48. *A. platyceps* (Blyth)
49. *A. stolata* (Blyth)
50. *A. xenura* (Wall)
51. *Blythia reticulata* (Blyth)
52. *Boiga cyanea* (Dumeril & Bibron)
53. *B. trigonata* (Schneider)
54. *Calamaria pavimentata* (Dumeril & Bibron)
55. *Chrysopelea ornata* (Shaw)
56. *Elaphe cantoris* (Boulenger)
57. *E. frenata* (Gray)
58. *E. hodgsoni* (Boulenger)
59. *E. porphyracea* (Cantor)
60. *E. prasina* (Blyth)
61. *E. radiata* (Schlegel)
62. *Liopeltis frenatus* Gunther
63. *Lycodon aulicus* (Linnaeus)
64. *L. jara* (Shaw)
65. *Oligodon albocinctus* (Cantor)

66. *O. cinereus* (Gunther)
67. *O. cyclurus* (Cantor)
68. *O. dorsalis* Gray & Hardwicke
69. *O. theobaldi* (Gunther)
70. *Pareas monticola* (Cantor)
71. *Psammodynastes pulverulentus* (Boie)
72. *Pseudoxenodon macrops* (Blyth)
73. *Ptyas korros* (Schlegel)
74. *Rhabdops bicolor* (Blyth)
75. *Rhabdophis himalayana* (Gunther)
76. *R. subminiata* (Schlegel)
77. *Sibynophis chinensis* (Gunther)
78. *S. collaris* (Gray)
79. *Stoliczkaia khasiensis* (Jerdon)
80. *Trachischium monticola* (Cantor)
81. *Xenochrophis cerasogaster* Cantor
82. *X. piscator* (Schneider)

Family 13 ELAPIDAE

83. *Bungarus bungaroides* (Cantor)
84. *B. fasciatus* (Schneider)
85. *B. niger* Wall
86. *Callophis macclellandi* (Reinhardt)
87. *Naja naja* (Linnaeus)
88. *Ophiophagus hannah* (Contor)

Family 14 VIPERIDAE

89. *Trimeresurus albolabris* Gray
90. *T. erythrurus* (Cantor)
91. *T. jerdoni* Gunther
92. *T. monticola* Gunther
93. *T. popeorum* Smith
94. *T. stejnegeri* Schmidt

Order - 1 TESTUDINES

Key to the families of the order Testudines.

1. Fore-limbs semi paddle shaped with 3 claws, carapace covered with smooth skin; edge of carapace flexible ..... ***Trionychidae***

   Forelimbs paddle shaped, with more than 3 claws, carapace covered with horny shields 2

2. Digits webbed, hind limbs paddle shaped ..... ***Emydidae***

   Digits not webbed, hind limbs club shaped ..... ***Testudinidae***

Family 1 EMYDIDAE

Key to the genera of family Emydidae.

1. Vertebral shields short sided anteriorly 2

   Vertebral shields short sided posteriorly 3

2. Axillary and inguinal buttresses well developed and extend almost up to the vertebral shields; alveolar surface of jaws broad with one or two median ridges 4

   Axillary and inguinal buttresses short, do not extend even half way along the costal plates; alveolar surface of jaws broad or narrow, without a median ridge ..... ***Geoclemys***

4. Fourth vertebral shield moderate, not longer than 3rd vertebral shield ..... ***Hardella***

   Fourth vertebral shield elongate, longer than the 3rd vertebral shield ..... ***Kachuga***

3. Plastron united to carapace by a ligamentous tissue; shell does not close completely ..... ***Cyclemys***

   Plastron united to carapace by a suture ..... ***Melanochelys***

Genus *Cyclemys* Bell 1834

Cyclemys Bell, *Proc. Zool. Soc.* 1834, p. 17

Cyclemy Bells, Tikader & Sharma, 1985, *Handbook; Indian Testudines.*, pp.156

Diagnostic Characters: Neural plates hexagonal, posteriorly short- sided; plastron not completely closing the shell, united to the carapace by ligaments; digits half to fully webbed.

Key to the species of *Cyclemys* Bell

1. Snout as long as the orbit and slightly projecting beyond the lower jaw; vertebral shields narrower than the costals; posterior margin of carapace strongly serrated in the young, comparatively less so in the adult; limbs with fully webbed digits ..... ***dentata***

   Snout shorter than the orbit and truncate; carapace strongly tricarinate; greatly flattened on vertebral region; anterior and posterior margin serrated; vertebral shields as broad as the costals; limbs with half webbed digits ..... ***mouhoti***

1. ***Cyclemys dentata*** (Gray 1831)

Garo and Khasi Hills Tortoise. (Col. Photo 3)

Emys dentata Gray, *Syn. Rept;* i 1831, p.20

Cyclemys dentata (Gray 1831), Tikader & Sharma, 1985 *Handbook : Indian Testudines*; pp.156

Diagnostic Characters : Head moderately large; snout shorter than the orbit, slightly projecting beyond the lower jaw; head posteriorly with large shields; carapace depressed and considerably flat; vertebrals narrower than costals; plastron with paired gular, humeral, axillary, pectoral, abdominal, femoral and anal shields; a small inguinal may be present; the median suture between the pectorals the largest, limbs with fully webbed digits and transversely enlarged scales.

Olive, brown or black above, head generally with black spots.

Total length : 240 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Assam. Indonesia; Malaysia; Myanmar; Philippine Islands; Thailand and Vietnam.

2. ***Cyclemys mouhoti*** (Gray 1862)

Assam Fresh Water Tortoise

Cyclemys mouhoti Gray, *Ann. Mag Nat. Hist (3) X,* 1862, p. 157

Pyxidea mouhotii (Gray) Das, 1987, *J. Bombay. nat. Hist. Soc* 84(1): 221 222.

Diagnostic Characters : Head moderately small; snout shorter than the orbit and truncate; posterior portion of the head with large shields; carapace strongly tricarinate, greatly flattened on the vertebral region; anterior and posterior margins serrated; plastron with or without the axillary shields; limbs with half webbed digits; hind limbs club shaped; forearm and sole covered with imbricate, pointed, horny shields.

Light brown above, beneath yellowish brown, with a dark spot on each plastral shield; head brown with dark edged light spots.

Total length : 170 mm.

Distribution : Garo Hills, Meghalaya, Assam; Arunachal Pradesh. Hainan, Laos; Vietnam.

Genus ***Geoclemys*** Gray 1855

Geoclemys Gray, *Cat Sh. Rept.* i. 1855, p. 17.

Geoclemys Gray, Smith, 1933, *Fauna of British India.* Vol. I., pp. 156

Diagnostic Characters : Neural plates hexagonal, short-sided anteriorly; plastron extensively united to carapace by suture with strong axillary and inguinal buttresses which extend to the outer ends of the costal plates; posterior portion of head with shields; digits fully webbed.

A single Species

3 *Geoclemys hamiltoni* (Gray 1831)

Black-spotted Pond Turtle.

Emys hamiltoni gray, *Illus. Ind. Zool. pt. vi,* pl,xi, 1831,

Geoclemys hamiltoni (Gray 1831), Tikader & Sharma, 1985, *Handbook : Indian Testudines* : pp. 156

Diagnostic Characters : Head broad and large; snout rounded, as long as the orbit and slightly projecting beyond the lower jaw; posterior portion of the head with shields; carapace tricarinate, strongly convex, vertebrals narrower than costals; plastron with paired gular, humeral, axillary pectoral, abdominal, inguinal, femoral and anal shields; limbs with fully webbed digits and transversely enlarged scales.

Dark brown to black, heavily spotted and streaked with deep yellow; head and neck with round yellow spots.

Total length : 310 mm.

Distribution : Garo Hills, Meghalaya; Assam; West Bengal; the river systems of Ganga and Sind. Pakistan.

Genus ***Hardella*** Gray 1870

Hardella gray, *Cat. Sh. Rept., Suppl.* i., 1870. p. 58.

Hardella Gray, Tikader & Sharma, 1985, *Handbook : Indian Testudines.*, pp.156

Diagnostic Characters : Neural plates elongate, hexagonal, short-sided in front, plastron extensively united to carapace by suture; posterior portion of the head with transverse scales; tail very short.

A Single Species

4. *Hardella thurgi* (Gray 1831)

Brahminy River Turtle.

Emys thurgii Gray, *Syn. Rept.* 1831. pp. 22 &72.

*Hardella thurg*i (Gray), Tikader & Sharma, 1985 *Handbook: Indian Testudines,* pp.156

Diagnostic Characters : Head moderately large with a pointed and extremely projecting snout; posterior portion with transverse rows of scales; vertbrals elongate, posteriorly with a knob like structure; broader than costals in adults, nuchal short-sidded anteriorly; plastron with paired gular, humeral, axillary, pectoral, abdominal, inguinal, femoral and anal shields; the median suture between the abdominal shields the longest; that between the gular the shortest; limbs with fully and broadly webbed digits and with narrow transversely enlarged scales; forelimbs with five claws.

Dark brownish-black above with a yellow margin; the keel and the inner margins of the first three constals black; yellow beneath with two large black spots on each side of the plastral bridge. Plastron with a blackish tinge on the anterior mid portion. Head dark brown or black; top of snout with curved orange yellow bands; limbs brownish, margined with yellow.

Total length : 200 650 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Assam, the river systems of Ganga, Brahmaputra and Sind, ranging from Sind in Pakistan to Sylhet in Bangladesh.

Remark : Males are small, reaching a maximum length of 200 mm where as females may attain a length of 650 mm.

Genus ***Kachuga*** Gray 1869

Kachuga Gray, *Proc. Zool. Soc.*, 1869, pp. 186 and 200

Kachuga Gray, Tikader & 1985, *Handbook : Indian Testudines*, pp. 156

Diagnostic Characters : Neural plates hexagonal, short-sided in front; fourth vertebral shield longer than board, overlapping 4-5 naural bones; posterior portion of head, with shields, limbs with fully webbed digits.

Key to the species of ***Kachuga*** Gray.

1. Fourth vertebral shield overlaps four neural bones; 2nd vertebral shield pointed and overlaps the 3rd vertebral ..... *dhongoka.*

   Fourth vertebral shield overlaps five neural bones..... 2

2. 24 marginal shields; 2nd vertebral shield longer than third..... *tecta*

   26 marginal shields; posterior margin of carapace strongly serrated..... *sylhetensis*

5. ***Kachuga dhongoka*** (Gray 1834)

Dhongoka Turtle

Emys dhongoka Gray, *Illus. Ind. Zool. ii,* 1834 pl. 60.

Kachuga dhongoka (Gray) Tikader and Sharma, 1985 *Handbook : Indian Testudines,* pp. 156.

Diagnostic Characters : Head moderately long with a pointed snout which projects beyond the lower jaw; posterior portion of the head with shields; carapace smooth, depressed, unicarinate, the keel most prominent up on the 2nd and 3rd vertebral shields; nuchal shield short sided in front; first vertebral longer than broad, more or less constricted in the middle, neural plates much longer than broad; plastron with paired gular, humeral, axillary, pectoral, abdominal, inguinal, femoral and anal shields is narrower than the opening of the shell; limbs with fully and broadly webbed digits and transversely enlarged scales; forelimbs with five claws.

Olive brown above with a black vertebral stripe; young with two black lateral stripes; yellowish beneath; juveniles with a large reddish brown patch on the shiedls of plastron; head with a yellow stripe, starting from the nostrils to above the eye and tympanum.

Total length : 200 480 mm.

Distribution : Khasi, Garo and Jaintia Hills, Meghalaya; Assam; Arunachal Pradesh; Bihar; Manipur; Mizoram; Nagaland; Sikkim;Tripura; Uttar Pradesh; West Bengal. Nepal.

Remarks : Males are small and grow to a maximum of 200 mm where as females may grow to 400 mm in length. These are entirely aquatic in nature and feed on vegetable matter.

6. ***Kachuga sylhetensis*** (Jerdon 1870)

Assam Sawback Turtte (Col. Photo.1)

Pangshura sylhetensis Jerdon, *Proc. Asiat. Soc.* Bengal 1870., p. 69,

Kachuga sylhetensis (Jerdon). Tikader and Sharma, 1985. *Handbook : Indian Testudines*, pp.156.

Diagnostic Characters : Head moderately small, snout pointed, shorter than the orbit and projecting much beyond the lower jaw; carapace elevated with a prominent vertebral keel which transforms into a backwardly projecting spike at the posterior margin of the 3rd vertebral shield, posterior margin of carapace strongly serrated; 26 marginal shields including the paired supracaudals; plastron with paired gular, humeral, axillary, pectoral, abdominal, inguinal, femoral and anal shields; limbs with fully and broadly webbed digits and with transversely enlarged scales.

Olive brown above; yellow beneath, each plastral shield with a large dark brown spot; head and neck with yellow streaks.

Total length : 180 mm

Distribution : Khasi and Garo Hills, Meghalaya; Assam; Nagaland.

7. ***Kachuga tacta*** (Gray 1831)

North Indian Roofed Turtle.

Emys tectum Gray, *Illus. Ind. Zool. Vol. I.* 1831, pl.72.

Kachuga tecta (Gray) Tikader and Sharma, 1985, *Handbook : Indian Testudines*, pp. 156.

Material examined : lex, India, Meghalaya, East Khasi Hills, Shillong, professorpara colony, 4.v.76. Coll. A.C. Sukhla.

Diagnostic Characters : Head moderately small, snout pointed, shorter than the orbit; posterior portion of the headwith large shields; carapace elevated and rounded; vertebrals with a strong keel which transforms into a spinous process at the posterior margin of the third shield; fifth vertebral broader than the rest; nuchal Shield short-sided in front; plastron with a pair of gular, humeral, axillary, pectoral, abdominal, inguinal, femoral and anal shields; limbs with fully webbed digits and with transversely enlarged scales.

Olive above, with minute black spots and orange or reddish vertebral stripe in the young; markings fade out in the adult; reddish, yellowish or reddish yellow beneath with large black spots; head and neck black with thin yellow longitudinal lines on the neck; limbs with yellow spots.

Total length : 230 mn.

Distribution : Khasi and Garo Hills, Meghalaya; Assam; the river systems of Ganga, Brahmaputra and Sind of India and Pakistan.

Remark : The females reach a maximum of 230 mm., males are much smaller than females.

Genus ***Melanochelys*** Gray 1869

Geomyda Gray, *Proc. Zool. Soc.* 1834. p.100

Melanochelys Gray, Tikader and Sharma, 1985, *Handbook : Indian Testudines,* pp. 156

Diagnostic Characters : Second neural plate octagonal, the succeeding ones broader anteriorly; plastron extensively united to the carapace by suture, with short axillary and inguinal buttresses which reach to the outer margin of the costals.

8. ***Melanochelys tricarinata*** (Blyth 1856)

Three-keeled Tortoise

Geomyda tricarinata Blyth, *J. Asiat. Soc. Bengal.xxiv.* 1856, p. 714.

Melanochelys tricarinata (Blyth) Tikader and Sharma 1985, *Handbook : Indian Testudines,* pp 156

Diagnostic Characters : Head moderately small, snout shorter than the orbit, truncate; carapace elongated, with three obtuse keels; vertebrals narrower than costals; plastron generally without the inguinal shields, limbs with half webbed fingers and toes with rudimentary webs.

Dark brown above with light brown keels; yellowish brown beneath, a broad red stripe on either side of the head and another one below the angle of the mouth; limbs with or without yellow spots.

Total length : 170 mm.

Distribution : Garo Hills, Meghalaya; Arunachal Pradesh; Assam; Bihar; West Bengal.

Family 2 TESTUDINIDAE

Genus ***Geochelone*** Fitzinger

Testudo Linnaeus, *Syst. Nat.ed.10.* 1758, p. 197

Geochelone Fitzinger, Tikader and Sharma, 1985 *Handbook : Indian Testudines,* pp. 156

Diagnostic Characters : Neural plates hexagonal, shortsided behind; plastron extensively united with the carapace by sutures; hind limbs club shaped, covered with enlarged bony scales; digits not webbed.

Key to the Species of ***Geochelone*** Fitzinger

1. Carapace convex, dome shaped; supra oculars paired; 25 marginals including the nuchal and supra caudals. ..... ***emys***

   Carapace flattened on the vertebral region; supra caudal single; 23 marginals including the nuchal and supra caudal. ..... ***elongata***

9. ***Geochelone elongata*** (Blyth 1853)

Yellow-headed Tortoise

Testudo elongata Blyth, *J. Asiat. Soc. Bengal,* xxii, 1853, p.639.

Geochelone elongata (Blyth), Tikader and Sharma, 1985, *Handbook Indian Testudines,* pp. 156

Diagonostic Characters : Head moderate; dorsally with shields; carapace elongate, narrow, flattened on the vertebral portion; vertebrals five, as broad as the costals, costals four, supracaudal single, forelimbs with large pointed scales; heels with large flat scales.

Yellow or greenish yellow above, with black markings.

Total length : 270 mm.

Distribution : Khasi, Garo and Jaintia Hills, Meghalaya; Assam; Arunachal Pradesh; Bihar; Manipur; Mizoram; Nagaland; Tripura, West Bengal. Kampuchia, Laos; Malaysia, Myanmar; Thailand and Vietnam.

10. *Geochelone emys* (Schlegel & Muller, 1844)

Yellow and Black Giant Tortoise

Testudo emys Schlegel and Muller, in *Temminck, Verh. Nat, Ned. Ind. Rept.* 1844, p. 34

Geochelone emys (Schlegel and Muller) Tikader and Sharma, 1985, *Handbook : Indian Testudines,* pp 156

Material examined : 1 ex, India, Meghalaya, West Khasi Hills, Ranikor 10.ii.87, Coll. V. T. Darlong.

Diagnostic Characters : Head massive, covered with large symmetrical shields; carapace convex and dome shaped, depressed on the vertebral region in juveniles but elevated in adults; five vertebrals, as broad or slightly broader than the costals; costals four; plastron sometimes longer than carapace owing to the extended gular shields; pectoral shields usually wide apart; inguinals large, often divided into two; forelimbs with five and hind limbs-with four claws; adults with a greatly enlarged conical scute on the back of the thigh.

Dark brown or black above, head and limbs black.

Total length : 470 mm

Distribution : West Khasi Hills, Meghalaya; Assam; Manipur; Mizoram;Nagaland; Tripura. Bangladesh; Borneo; Malaysia; Myanmar; Sumatra and Thailand.

Remarks : It is the largest of the Asiatic land tortoises.

Family 3 TRIONYCHIDAE

Key to the genera of the family Trionychidae.

1. Plastron with soft, semicircular flaps to conceal the retracted hindlimbs..... ***Lissemys***

   Plastron without skin flaps..... ***Trionyx***

Genus ***Lissemys*** Smith 1933

Trionyx Geoffroy, *Ann. Mus. Hist. Nat. Paris,* xiv, 1809. p.1

Lissemys, Smith, Tikader and Sharma, 1985, *Handbook :Indian Testudines,* pp.156

Diagnostic Characters : Nuchal bone boat shaped; eight pairs of costals, plastron with a cutaneous femoral valve which conceals the hind limbs.

A single species reported in Meghalaya.

11. *Lissemys punctata punctata* (Lacepede 1788)

North Indian Flap shelled turtle. (Col. Photo.2)

La *Tortue chagrinee* Lacepede, *Hist.Quad. Ovip.*i.1788, p.171

Lissemys punctata punctata (Lacepede), Tikader and Sharma, 1985, *Handbook : Indian Testudines*, pp. 156

Material examined : lex, India, Meghalaya, West Khasi Hills, Ranikor, 9.ii.87. Coll. V.T. Darlong.

Diagnostic Characters : Head moderate; snout short and broad, carapace and plastron covered by a continuous sheet of soft skin; plastron with soft semicircular flaps, which conceals completely the retracted hind feet, limbs fully webbed and with three claws.

Olive brown above with irregularly arranged black-edged yellow spots.

Total length : 240 mm.

Distribution : West Khasi Hills, Meghalaya; Assam; Andaman Islands; the Ganga and Sind river systems; Sikkim; West Bengal. Bangladesh; Myanmar; Nepal; Pakistan; Sri Lanka.

Genus ***Trionyx*** Geoffroy 1809

Trionyx Geoffroy, *Ann Mus Hist. Nat. Paris,* xiv. 1809 pp. 4 to 20.

Trionyx Geoffroy, Tikader and Sharma, 1985, *Handbook :Indian Testudines,* pp. 156

Diagnostic Characters : Normally eight pairs of costals, eight neurals and dorsals;limbs with three claws; proboscis as long as the diameter of the eye.

12. *Trionyx hurum* Gray 1831

Peacock-marked soft shelled turtle.

Trionyx hurum Gray *Syn. Rept.* 1831, p. 47.

Trionyx hurum Gray, Tikader and Sharma, 1985. *Handbook : Indian Testudines.* pp.156.

Diagnostic Characters : Head large, snout longer than the orbit; carapace pitted and vermiculated; nuchal shield absent.

Olive-Green above with four striking ocelli and black reticulations; head dark green with yellow spots; a pale yellow spot across the snout; plastron ivory white.

Total length : 600 mm

Distribution : Garo Hills, Meghalaya; Assam; Lower reaches of Ganga and Brahmaputra.

DISTRIBUTION OF TESTUDINES IN MEGHALAYA

		Khasi Hills	Garo Hills	Jaintia Hills
1.	*Hardella thurgi* (Gray)	+	+	–
2.	*Kachuga dhongoka* (Gray)	+	+	+
3.	*K. sylhetensis* (Jerdon)	+	+	–
4.	*K. tecta* (Gray)	+	+	–
5.	*Geoclemys hamiltoni* (Gray)	–	+	–
6.	*Cyclemys dentata* (Gray)	+	+	–
7.	*C. mouhoti* Gray	–	+	–
8.	*Melanochelys tricarinata* (Blyth)	–	+	–
9.	*Geochelone elongata* (Blyth)	+	+	+
10.	*G. emys* (Schlegel and Muller)	+	–	–
11.	*Lissemys punctata punctata* (Lacepede)	+	–	–
12.	*Trionyx hurum* Gray	–	+	–

N.B.
+ = Occurrence
– Non occurrence

Order - II SQUAMATA

Sub-Order - (i) SAURIA

Key to the families of Sauria

1. Limbs present 2
   Limbs absent ..... Anguidae
2. Head shields symmetrical 3
   Head shields asymmetrical 4
3. Femoral pores present ..... Lacertidae
   Femoral pores absent ..... Scincidae
4. With femoral or preanal pores 5
   Without femoral or preanal pores ..... Agamidae
5. Dorsally with granules or imbricate scales ..... Gekkonidae
   Dorsally with roundish or oval scales surrounded by rights of granules ..... Varanidae

Family 4 GEKKONIDAE

Key to the genera of Gekkonidae

1. Digits dilated.....2

   Digits not dilated, angularly bent forming an apical and basal portion.....3

3. Pupil vertical.....***Cyrtodactylus***

   Pupil round.....***Cnemaspis***

2. Dorsal scales granular or tubercular.....4

   Dorsal scales imbricate.....***Teratolepis***

4. A cutaneous expansion along the side of the body.....***Cosymbotus***

   No cutaneous expansion.....5

5. Sub digital lamellae divided.....***Hemidactylus***

   Sub-digital lamellae undivided.....***Gekko***

Genus *Cyrtodactylus* Gray.

Cyrtodactylus Gray, *Phil. Mag. (2)* ii. 1827, p. 55

Gymnodaetylus Spix, Smith, 1935, *Fauna of British India,* II Sauria, pp 1 440

Diagnostic Characters : Digits clawed, beneath with a row of distinct transverse plates; eye with vertical pupil; two or 3 pairs of postmentals.

13. *Cyrtodactylus khasiensis* (Jerdon)

Pentadactylus khasiensis Jerdon, *P. Asiat. Soc. Beng.* 1870. p.75.

Cyrtodactylus khasiensis (Jerdon), Ahmed and Dasgupta, 1991, *Fauna of West Bengal* 2. pp.1 65 in press).

Material examined : 7ex : lex, India, Meghalaya, East Khasi Hills, Umtham, 26. ix.73, Coll. S. K. Chanda; lex, East Garo Hills, Williamnagar, Songsak, 11. x. 83, Coll. J. R. B. Alfred; 5 ex, East Khasi Hills, Barapani, 15. v. 71. Coll. R. S. Pillai.

Diagnostic Characters : Snout longer than the distance between the eye and the ear opening; 10 to 12 upper and as many lower labials; body and limbs above with small granular scales, intermixed with larger tubercles; a lateral fold of enlarged scales, belly with rounded imbricate scales, 30 to 40 across the middle; tail covered with small flat scales, those on the median line below larger than the others,a dorsal series of enlarged tubercles on the basal part; Male with an angular series of 8 to 14 preanal pores.

Light brown or greyish brown above with dark spots or markings more or less regularly arranged; head with brown spots; tail with brown bands; belly whitish.

Length : Snout to vent 59 mm, tail 67 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Assam; West Bengal. Myanmar.

Genus ***Cnemaspis*** Strauch

Cnemaspis Strauch, *Mem. Acad. St. Petersb. XXXV,* 18887, p. 41.

Cnemaspis Strauch, Smith, 1935, *Fauna of British India II.* pp. 1 440.

Diagnostic Characters : Digits clawed; pupil round; body depressed, tail cylindrical.

14. ***Cnemaspis jerdoni*** (Theobald).

Gymnodactylus jerdoni Theobald, *Cat. Rept. Asiat. Soc. Mus.* 1868. p. 31.

Cnemaspis jerdoni (Theobald), Mathew, 1982, *J. Bombay, Nat. Hist. Soc. 79* (1) pp. 208- 209.

Material examined : lex,India : Meghalaya, East Garo Hills, Extreme south of Dianadubi forest, 14. iv. 71, Coll. R. S. Pillai.

Diagnostic Characters : Snout obtusely pointed; 8 10 upper and 7 or 8 lower labials; mental broader than the rostral; back with small uniform scales, intermixed on the flanks with a few spine-like white tubercles, ventral scales smooth, imbricate and rather large; digits moderately elongate, subdigital lamellae large and few in number; tail covered above with small imbricate scales and a regular series of slightly larger pointed tubercles; below with a median series of larger scales; males with 5 to 15 femoral pores on each side.

Greyish- brown above, clouded with darker; the small lateral spines white; a black spot on the nape may or may not be present; dirty white below.

Length : Snout to vent 28 mm, tail 30 mm.

Distribution : Garo Hills, Meghalaya; Western Ghats. Sri Lanka.

Remarks : Smith (1935) recorded it from South India and Sri Lanka. Since the genus as a whole has a South Indian distribution, the occurrence of *C. jerdoni* in Meghalaya is interesting. The only specimen studied from Meghalaya has 11 pairs of femoral pores on each side and 6 preanal pores.

Genus ***Teratolepis*** Gunther

Teratolepis Gunther, *Proc.Zool.Soc.* 1869, p. 504

Teratolepis Gunther, Smith, 1935, *Fauna of British India-II* pp. 1 440

Diagnostic Characters : Digits moderately dilated; free, with transverse lamellae beneath, the anterior ones mesially notched; dorsal scales imbricate, pointed, much larger than the ventral scales;tail covered with extremely large imbricate scales; pupil vertical.

15. ***Teratolepis fasciata*** (Blyth)

Homonota fasciata Blyth, *J. Asiat. Soc. Beng. XXII* 1853, P. 468

Teratolepis fasciata (Blyth) Smith, 1935, *Fauna of British India-II.* pp. 1 440.

Diagnostic Characters : Snout obtusely pointed; 8-10 upper and 7 8 lower labials; 3 pairs of postmentals, the inner pair largest; gular scales small, flat, granular; head covered above with large polygonal scales; neck and back with imbricate pointed, keeled scales; twice as large as the ventral scales; tail depressed, constricted at base, and suddenly swollen, tapering to a point, covered with large, leaf-like scales; digits with undivided lamellae, 8-9 under the 4th toe. Male with 6 pre anal pores.

Light greyish-brown above, with five longitudinal dark brown dorsal stripes, crossed at regular invervals by six rows of large whitish spots; a whitish transverse band on the occiput and another curved, infront of it; tail brown with whitish cross-bands; below speckled with brown.

Length : Snout to vent 40 mm; tail 27 mm.

Distribution : Khasi Hills, Meghalaya.

Remarks : This species is represented by few examples with doubtful locality records. Smith (1935) records it from Shillong in the Khasi Hills, which is also doubtful.

I have not seen this species.

Genus *Cosymbotus* Fitzinger 1843

Platyurus Oken, *Allgem. Naturgesch vi.* 1836, p. 641

Platyurus, Oken, Smith, 1935, *Fauna of British India II, Sauria* pp- 1- 440.

Diagnostic Characters. : Digits webbed, with divided lamellae beneath, a cutaneous expansion along the side of the body, pupil vertical, males with preanal and femoral pores.

16. *Cosymbotus platyurus* (Schneider)

Stellio platyurus Schneider, *Amphib Physiol.ii.*, 1792, p.30.

Cosymbotus platyurus (Schneider). Ahmed and Dasgupta, 1991 *Fauna of West Bengal 2,* pp. 1- 65. (in press)

Material examined : 44 ex : lex, India, Meghalaya, East Khasi Hills, Shillong, Bishnupur, 5. iv. 60, Coll. S. N. Prasad; 3 ex, East Khasi Hills, Shillong, Kenehe's trace, 20.xi.66, Coll. S. Biswas;1 ex, East Khasi Hills, Shillong, Kenche's trace 15.v.67, Coll. B. K. Tikader; 1 ex, East Khasi Hills, Shillong, 11.iv.64, Coll. R. K. Varshney; 1 ex, East Khasi Hills, Shillong, E.R.S./Z.S.I. Insectary building compound, 23.x.68, Coll. S. K. Sobhani; 1 ex, East Khasi Hills, Shillong, Lumparing, 6. iii.70, Coll. S. K. Talukdar; 1 ex, East Khasi Hills, Shillong, Kenche's trace, 9.xii.68, Coll. P. B. Thapa; 1 ex. East Khasi Hills, Shillong, Risa Colony, 28.ii.74 Coll. M. Vasanth, 1 ex. East Khasi Hills, Shillong, Risa Colony, 15.vi.74, Coll. R. Mathew; 1 ex, East Khasi Hills, Shillong, Risa Colony, 9.v.73, Coll. A. C. Sukla; 1 ex, East Khasi Hills, Shillong Risa Colony, 31.vii.74, Coll. K. Deb; 1 ex. East Garo Hills, Dobasipara village road side stream, 25 kms from Tura, 16.ii.71, Coll. G. M. Yazadani; 1 ex, East Khasi Hills, Shillong, Risa Colony, 24.vi.72, Coll. K. Deb; 1 ex South Garo Hills near Siju I B, 22.ii.71, Coll. G. M. Yazdanni; 1 ex, East Khasi Hills, Shillong, Risa Colony, 5.ix.74, Coll. M. Vasanth; 1 ex East Garo Hills, Darugiri Rest House, 10.iv.71. Coll.

R. S. Pillai; 1 ex. East Khasi Hills, Shillong, Risa Colony, 24.vii.71, Coll. R. S. Giri; 1 ex, East Khasi Hills, Shillong, Risa Colony, 24.v.71, Coll. R. S. Giri, 1 ex, West Garo Hills, Anogre, 7.xi.73, Coll. S. Biswas; 1 ex, East Garo Hills, Songsak Reserve forest, 14.iv.73, Coll. S. Biswas; 1 ex, Jaintia Hills, Garampani, 26.i.75, Coll. A. K. Ghosh; lex, West Garo Hills, Rongrem IB, 3.iii.75, Coll. S. Biswas; lex, West Garo Hills, Anogre, 21.ii.75, Coll. S. Biswas;1 ex, East Khasi Hills, Shillong, Lady Hydari Park, 15.i.75, Coll. M. S. Jyrwa, lex, East Khasi Hills, Shillong, Risa Colony, 25.ix.74, Coll. R. Mathew; 1 ex. East Khasi Hills, Shillong, Risa Colony, 1.vi.74, Coll. K. Deb., lex. East Khasi Hills, Shillong, Risa Colony, 15.ii.75, Coll.R. Mathew, 1 ex, East Khasi Hills, Shillong, Malki, 6.viii.75, Coll. M.S. Jyrwa; lex, East Khasi Hills, Shillong, Laitumkhrah, 24.iii.71, Coll. S.K. Talukdar; lex. East Khasi Hills, Shillong Lumparing, 4.xi.75, Coll. R. S. Giri, lex, East Khasi Hills, Shillong, Malki, 19.viii.75, Coll. R. S. Giri; lex, East Khasi Hills, Shillong, Malki, 14.viii.73, Coll. M. S. Jyrwa; lex, East Khasi Hills, Shillong, Nongthymmai, 25.viii.73. Coll. M. S. Jyrwa. lex. East Khasi Hills, Shillong, Lady Hydari Park, 12.x.73, Coll. R. S. Giri, lex, East Khasi Hills, Shillong. Laitkor, 20.vii.76, Coll. M.S. Jyrwa; lex, East Khasi Hills, Shillong, Lumparing. 16.ii.73, Coll. R.S. Giri, lex East Khasi Hills, Shillong, Tripura Castle Road, 16.iv.72, Coll. Khem Bahadur; lex, East Khasi Hills, Shillong, Motinagar, 5.v.77, coll. M.S. Jyrwa, lex., East Khasi Hills, Shillong, Risa Colony 28.ix.81, Coll. P.B. Thapa, lex, East Khasi Hills, Mawpat,16.iv.79, Coll. S.G. Patil, lex, East Khasi Hills, Umtasor, 25.iv.84, coll. C. Radhakrishnan. 1 ex, East Khasi Hills Shillong, Laitumkhrah, 24.iii.71, Coll. S.K. Talukdar.

Diagnostic Characters. : 11 to 13 upper labials, 8 to 10 lower labials; 2 pairs of postmentals, the inner pair largest; a pair of internasal, usually with a scale between them; head covered above with minute granular scales, largest upon the snout, back with uniform small granular scales; belly with smooth, imbricate, rounded scales; a cutaneous expansion along the sides of the body and hind limb; digits partly webbed; 5 to 8 pairs of lamellae under the 4th toe; Tail strongly depressed with sharply denticulated margin; covered above with small scales and below with larger ones and a series of transversely enlarged plates; Males with a continuous series of about 13 to 20 preanal and femoral pores. Gray above, marbled and spotted with darker, a vertebral series of paired spots often present; tail with dark cross bands.

Length : Snout to vent 64 mm, tail 67 mm.

Distribution : Khasi, Garo and Jaintia Hills, Meghalaya; Arunchal Pradesh; Sikkim; West Bengal. Formosa; Hong-Kong; Indo.China; Nepal; Sri Lanka.

Remarks.: In one of the spcimens dark spots were arranged in 5 longitudinal series along the back. A maximum number of 43 preano-fomoral pores were also observed in another specimen.

Genus ***Hemidactylus*** Oken

Hemidactylus Oken, *Isis,* 1817, p. 1183

Hemidactylus oken, Smith, 1935, *Fauna of British* India, II Sauria, pp. 1-440.

Diagnostic Characters. : Digits strongly dilated with transversely divided lamellae beneath, terminal phalanges compressed, free or united with the expanded portion; inner digit well developed with free clawed, terminal phalanges; pupil vertical, males with preanal and or femoral pores.

Key to the species of Hemidactylus Oken

1. Enlarged dorsal tubercles numerous, arranged in regular longitudinal series .....***brooki***

   Enlarged dorsal tubercles, if present, smooth, rounded and not regularly arranged.....***frenatus***

17. *Hemidactylus frenatus* schlegel

Hemidactylus frenatus Schlegel, *Erp.Gen.iii,* 1836, p.366.

Hemidactylus frenatus Schlegel, Ahmed and Dasgupta, 1991, *Fauna of West Bengal, 2,* pp. 1-65 (in press).

Material Cxamined : 4 ex : lex, India, Meghalaya, Jaintia Hills, around Sonapur IB, 27.viii.74, Coll. A. R. Lahiri, 2 ex, East Garo Hills, Damra Rest House, 23.xi.73, Coll. S. Biswas; lex. East Garo Hills, Songsak Reserve forest, 16.iv.73, Coll. S. Biswas.

Diagnostic Characters. : Snout obtusely pointed; 10-12 upper and 8 to 10 lower labials; 2 pairs of well developed postmentals of nearly equal size; gular region with small granular scales; hinder part of the head covered with small granules, snout with larger ones, back with smallgranules intermixed with rounded or conical tubercles; these enlarged tubercles vary considerably in number and may be absent altogether; belly with smooth, rounded, imbricate scales; 9 to 10 lamellae under the 4th toe; tail covered above with small scales and a series of six enlarged pointed tubercles arranged in regular rows; below with a median series of transversely enlarged scales. Males with a continuous series of about 26-36 preano-femoral pores.

Greyish or pinkish brown above, sometimes quite darker, with indistinct darker markings sometimes arranged as longitudinal stripes; a dark line along the side of the head and a light one above it usually present; whitish below; tail sometimes coral red.

Length : Snout to vent 60 mm, tail 65mm.

Distribution : Garo and Jaintia Hills, Meghalaya; Assam; Manipur; Southern India; Tripura; West Bengal; Hainan; Hong-Kong; Indo China; Malay Peninsula; Sri Lanka; Australia; Africa; St. Helena; Yunnan.

Remarks : As observed by Smith (1935) there are variations in number and position of the tubercles in this species.

18. *Hemidactylus brooki* Gray

House - Gecko

Hemidactylus brookii Gray, *Cat Liz. Brit. Mus.* 1845, p.153

Hemidactylus brooki Gray, Ahmed and Dasgupta, 1991, *Fauna of West Bengal, 2* pp. 1-65 (in press)

Material examined : 13 ex : lex, India, Meghalaya, West Garo Hlls, Anogre IB, 8.xi.73, Coll. S. Biswas; lex, West Garo Hills, Tebongiri, 11.xi.73, Coll. s. Biswas; 5 ex, West Garo Hills, Anogre, 8.xi.73, Coll. S. Biswas; lex, East Garo Hills, Songsak IB, 17.xi.73, Coll. S. Biswas; lex, East Garo Hills, Darugiri Rest House compound, 10.iv.73, Coll. R .S. Pillai; 2aex, West Garo Hills, Anogre forest, 21.ϕ 75, Coll. S. Biswas; lex, East Garo Hills, Selbalgiri, 25.ii, 75, Coll. S. Biswas; lex, East Garo Hills Songsak reserve forest, 14.iv.73, Coll. S. Biswas.

Diagnostic Characters. : Snout obtusely pointed; 8-10 upper and 7 10 lower labials; 2 pairs of postmentals, the inner pair elongate and larger than the outer; Snout covered with small scales, hinder part of head with small granules and larger rounded tubercles; back with small granular scales and conical tubercles arranged in from 16 to 20 more or less regular longitudinal rows; belly with smooth scales; 7-10 lamellae under the 4th toe; tail depressed, covered above with small scales and a series of 6-8 long pointed tubercles, below with imbricate seales and a median scries of transversely enlarged plates; Males with 7 16 preano femoral pores on each side, usually interrupted mesially.

Light brown or greyish above, with dark brown spots; a dark streak along the side of the head.

Length : Snout to vent 58 mm, tail 76mm.

Distribution : Garo Hills, Meghalaya; Assam; Arunachal Pradesh; West Bengal ; the whole of India. Sri Lanka.

Genus *Gekko* Laurenti

Gekko Laurenti, *Syn. Rept.* 1768 p.43

Gekko Lauranti,Smith, 1935, *Fauna of British India,* II Sauria, pp. 1-440.

Diagnostic Characters. : Digits free or partly webbed with undivided transverse lamellae beneath; terminal phalanges of outer four digits slender, compressed, clawed, attached to the dilated portion; inner digit well developed, clawless; dorsal scales small, uniform or inter mixed with larger tubercles; Males with pre-anal and femoral pores.

19. *Gekko gecko* (Linnaeus)

Tokay

(Col. Photo 5)

Lacerta gecko Linnaeus, *Syst. Nat. ed. 10,* 1758, p.205

Gekko gecko (Linnaeus), Ahmed and Dasgupta, 1991, *Fauna of West Bengal 2,* pp. 1-65 (in press).

Material examined : 3 ex : lex, India, Meghalaya, East Garo Hills, Darugiri IB, 10. iv. 71, Coll. S. Biswas; lex, East Garo Hills, Selbalgiri, 23.i.87, Coll. J. P. Sati.

Dianostic Characters : 12-14 upper and 10-12 lower labials; 4-5 pairs of postmentals; gular region with small flat granules; head covered above with small polygonal scales, back with small scales intermixed with larger tubercles arranged in about 12 longitudinal series; 20-23 lamela under the 4th toe; tail covered above with subqudrangular smooth scales and regular rows of large conical, tubercles; below with large, flat smooth scales, the medin ones of which are larger than the others; Males with 10-24 preanal pores. Violet grey above, spotted all over with brick red and whitish grey (in the young, these whitish spots form transverse bands); tail with alternating bands of olive-brown and staty-grey; below whitish with small pinkish spots.

Length : Snout to vent : 125 mm, tail 90 mm.

Distribution : Garo Hills, Meghalaya; Andamans; Bihar; Mizoram; Tripura; West Bengal. China; Indo-China; East India Archipelago; Malay Peninsula.

Family 5 AGAMIDAE

Key to the genera of Agamidae

1. Three parallel longitudinal folds on each side of the throat.....***Ptyctolaemus***
   No folds on the throat .....2.
2. Dorsal scales equal-sized, regularly arranged..... ***Calotes***
   Dorsal scales unequal 3
3. A postorbital spine present .....***Oriocalotes***
   Postorbital spine absent.....***Japalura***

Genus ***Ptyctolaemus*** Peters

Otocryptis (Ptyctolaemus) Peters, *Mon. Akad. Berlin,* 1864, p. 386.

Ptyctolaemus Peters, Smith, 1935, *Fauna of British India, II, Sauria* pp. 1-440.

Diagnostic Characters. : Dorsal scales unequal, keeled; tympanum hidden.

20. ***Ptyctolaemus gularis*** Peters

(Col. Photo 8)

Otocryptis (Ptyctolaemus) gularis Peters, *Mon. Akad. Berlin,* 1864, p. 386.

Ptyctolaemus gularis Peters, Mathew, 1982, *J. Bombay, nat. Hist. Soc.* 79 (i). pp. 208-209.

Material examined : 54 ex: 1 ex India, Meghalaya, East Khasi Hills, Shillong, Kenche's trace, 27.v.1960, Coll. S. N. Prasad; 1 ex, East Khasi Hills, Shillong, Fruit Gardon, 17.v. 1961.Coll. S. K. Sobhani 1 ex, East Khasi Hills, Shillong, Motinagar, 23.iii. 63, Coll. S. K. Sobhani; 1 ex, East Khasi Hills, Shillong, Motinagar, 23.iii. 63, Coll. M. R. Rynth; 1 ex, East Khasi Hills Umshing, 13.viii. 63, Coll. M. R. Rynth; 1 ex, East Khasi Hills, Mawroh, 17.x.63, Coll. M. R. Rynth; 1 ex, Jaintia Hills. Myntru river, 5 km South of Jowai, 13.xii.63, Colll. A. S. Rajagopal; 1 ex East Khasi Hills, Shillong, Kenche's trace, 22.v.63, Coll. K. C. Kharkongar; 1 ex, East Khasi Hills. Shillong, Kenches trace, 15. viii. 65; Coll. B. K. Tikader 1 ex, East Khasi Hills, Umtyngar, 8. viii.69, Coll. R. K. Varshney; 1 ex, East Khasi Hills, Shillong, Rilbong, 20.ii.70, Coll. S. K. Talukdar; 1 ex; East Khasi Hills, Shilong, Risa Colony, 5. i. 70, Coll. S. K.Talukdar, 1 ex, East Khasi Hills, Shillong, Kenche's trace.23 v. 61, Coll. M.K. Sen; 1 ex, East Khasi Hills, Shillong, Temple Road. 8.v.70,Coll. S. K. Talukdar; 1 ex, East Khasi Hills, Shillong, Lachumiere, 10.vii.69, Coll. S. K. Talukdar; 1 ex, East Khasi Hills, Umran, 7. vii. 71, Coll. S. K. Talukdar; 1 ex, East Khasi Hills, Shillong, Motinagar, 7.vi. 71, Coll. R. S. Giri; 1 ex, East Khasi Hills, Shillong, Risa Colony, 21. xii. 73, Coll. S. J. S. Hattar; 1 ex; East Khasi Hills, Shillong, New colony Road, 5.v. 72, Coll. As S. Rao; 3 ex; East Khasi Hills, Shillong, Risa Colony, 10.iii.72, Coll. A. C. Sukla; 1 ex, East Khasi Hills, Shillong, Risa Colony,. 4.iv. 73. Coll. K. K. Deb; 1 ex, East Khasi Hills, Shillong, Laban, 12.v.73, Coll. M. S. Jyrwa; lex. East Khasi Hills, Shillong, New Colony, 5.ii.73, Coll. M.

S. Jyrwa; 1 ex East Khasi Hills, Shillong, New Colony, 5.ii.73,Coll. M. S. Jyrwa; 1 ex. East Khasi Hills, Shillong Peak, 25.v.73.Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 23. iv. 74, Coll. M. Vasanth; 1 ex, East Khasi Hills, Shillong. Motinagar forest, 9. ix. 74, Coll. R. Zoramthanga; 2ex, East Khasi Hills, Shillong, Risa Colony, 10.vii.74 and 12.vii.74, Coll. R. Mathew; 1 ex, East Khasi Hills, Shillong, Jinking, 19.ii.72,Coll. S. K. Talukdar; 2 ex, East Khasi Hills, Shillong, Risa Colony, 19.x.74, Coll. A. K. Ghosh; lex, East Khasi Hills, Shillong, Risa colony, 13.v.74, Coll. Sunil Dey; 1 ex, East Khasi Hills, Shillong, 11. vi. 74, Coll. A. Singh; lex, East Khasi Hills, Shillong, Risa Colony, 18.iii. 75, Coll. K. Deb; 1 ex, East Khasi Hills, Shillong, Risa Colony, 25.v.73, Coll. J. K. Prasad, 1 ex, East Khasi Hills, Shillong, Risa Colony. 3.iv.75, Coll. R. Zeramthanga; 1 ex. East Khasi Hills, Shillong, Tripura Castle Road, 8.v.75, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong. Lumparing, 12.v.75, Coll. R. S. Giri; 1 ex, East Khasi Hills, Shillong, Malki forest, 9. vi. 75, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong, 23.v.75, Coll.K. R. Rao; 1 ex, East Khasi Hills, Shillong, Malki Forest, 8.viii.74, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Fruit Garden, 12.i.76, Coll. R. S. Giri, 1 ex; East Khasi Hills, Shillong, Nongthymmai, 3.iv. 76, Coll. M. Vasanth; 1 ex, East Khasi Hills, Shillong, Risa Colony, 20.iv.76, Coll. Chandan Singh; 1 ex, East Khasi Hills, Shillong, Laban; 3.iv.73, Coll. M.S. Jyrwa, 1 ex, East Khasi Hill, Shillong, Arbuthnot, Road, 17.iv.73, Coll. M. S. Jyrwa, 1 ex, East Khasi Hills, Shillong, Risa Colony, 9.vi.77. Coll. R. Mathew, 1 ex ; East Khasi Hills, Byrnihat, 21.iv.81, Coll. J. P. Satri; 1 ex, East Khasi Hills, Shillong, Risa Colony, 15.ix.81, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 6.vii.84, Coll. A. Husain; 1 ex, East Khasi Hills, Upper Shillong, 9.vii.83, donated by St. Peter's School, Shillong; 1 ex, East Khasi Hills, Shillong, Risa Colony, 21.vi.84. Coll. A. Husain; 1 ex. East Khasi Hills, Shillong, Risa Colony, 12.iv.72, Coll. A. Sukla.

Diagnostic Characters. : Canthus rostralis and supraciliary edge sharp; dorsal scales unequal, the smaller feebly and the larger strongly keeled; ventrals as large as the dorsals, strongly keeled and mucronate.

Olive brown or light yellowish-brown above, with darker transverse bars or spots; two curved dark brown cross bars, separated by a light one between the eyes; a dark stripe from below the eye to the angle of the mouth; a light yellow stripe starting from behind the head, continues along the flank to half its length; Limbs and tail above with dark cross bars; flanks with pointed, yellowish, tublercles; yellowish white below, the folds on the throat dark blue.

Length : Snout to vent 90 mm. tail 185 mm.

Distribution : East Khasi Hills and Jaintia Hills, Meghalaya.

Remarks : This is the most common agamid found in Shillong especially during the warmer months Mathew (1982) observed that "the males of this species are capable of remarkable colour display. During breeding season, sexual dimorphism is clearly shown by males by the fully extended

throat with its conspicuous blue colour. A pale yellow (with a greenish tinge) longtudinal stripe, along the lateral sides commencing from a little behind the tympanum and extending to one third of the body is very distinct during this time"

Genus *Calotes* Rafinesque

Calotes Rafinesque. Anal. Nat. 1815. p.75

Calotes Rafinesque, Smith, 1935, *Fauna of British India, II. Sauria,* pp. 1-440.

Diagnostic Characters. : Dorsal scales uniform; a dorsal crest more or less developed; tympanum exposed; tail long and slender.

Key to the species of *Calotes* Rafinesque

1. An oblique fold or triangular pit covered with small granular scales present in front of the shoulder.....2

   Fold or pit absent in front of the shoulder.....3

2. Two parallel rows of compressed scales above the rympanum; colour green.....*jerdoni*

   No parallel rows of scales; a postorbital spine present, colour brown.....*emma*

3. Two separate spines above the tympanum, colour brown.....*versicolor*

   Two parallel rows of compressed scales above the rympanum; colour green.....*maria*

21. *Calotes jerdoni* Gunther,

Calotes jerdoni Gunther, *Proc Zool Soc. Nov.* 1870, p.778

Calotes jerdoni Gunther, Smith, 1935, *Fauna of British India,* Vol. II, pp. 440.

Material examined : 38 ex: 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Motinagar, 3.viii.61, Coll. s. N. Prasad; 1 ex, East Khasi Hills, Shillong, Risa Colony, 10.v.61, Coll. S. K. Sobhani; 1 ex, East Khasi Hills, Umran, 19.vii.62, Coll. S. N Prasad; 1 ex, East Khasi Hills,, Shillong, Risa Colony, 14.v.63, Coll. S. K. Sobhani; 1 ex, East Khasi Hills, Mawphlang, 31.x.64. Coll. R. P. Ghosh; 1 ex, East Khasi Hills, Shillong, Jowai Road, 5.v.64 Coll. S. Biswas; 2ex, East Khasi Hills, Umsning, 14.v.64, Coll. M. R. Rynth; 1 ex, East Khasi Hills, Shillong, Crinoline falls, 28.iv.654. Coll. S. Biswas; 1 ex, East Khasi Hills, Shillong, Risa Colony, 7.v.65, Coll. S. K. Sobhani; 1 ex, East Khasi Hills, Shillong, Wood land compound, 14.x.63, Coll. S. N. Prasad; 1 ex, East Khasi Hills, Shillong, Barik, 13.i.71, Coll. S. K. Talukdar; 1 ex, East Khasi Hills, Shillong, Risa Colony, 24.v.71, Coll. S. Biswas; 1 ex, Garo Hills, Rongrengiri, 19.iv.73, Coll. S. Biswas; 1 ex, East Khasi Hills, Shillong, Risa Colony, 28.iii.72, Coll. R. S. Giri; 1 ex, East Khasi Hills, Shillong, Risa Colony, 7.ix.72, Coll. S. C. Roy; 1 ex, East Khasi Hills, Shillong, Motinagar, 12.vi.73, Coll. M. S. Jyrwa; 1 ex,East Khasi Hills, Shillong, Risa Colony, 19.vii.73, Coll. A. C. Sukla; 1 ex, East Khasi Hills, Shillong, Risa Colony, 24.iv.73, Coll. S. K. Dey; 1 ex, East Khasi

Hills, Shillong, 23.iv.74, Coll. M. Vasanth; 1 ex, East Khasi Hills, Shillong, Risa Colony, 24.iv.74, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 10.ii.73, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills Shillong, Risa Colony, 18.ix.74, Coll. R. Zoramthanga; 1 ex, East Khasi Hills, Shillong, Risa Colony, 18.iii.71, Coll. S. K. Talukdar; 1 ex, East Khasi Hills, Shillong, Woodland Compound, 14.x.63, Coll. S.N. Prasad, 1 ex, East Khasi Hills,Nonglyer, 10.viii.71, Coll. S. Biswas; 1 ex, East Khasi Hills, Cherrapunjee; Mawsmai Cave, 21.iii.72, Coll. R. S. Pillai; 1 ex, East Khasi Hills, Shillong, Risa Colony, 17.iv.72, Coll. A. C. Sukla; 1 ex, East Khasi Hills, Shillong, Risa Colony, 8.ix.71, Coll. S. K. Talukdar; 1 ex, East Khasi Hills, Shillong, 22.iv.75, Coll. R. Zoramthanga; 1 ex, East Khasi Hills, Shillong, Tripura, Castle Road, 3. vii. 75, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Tripura Castle Road, 22. viii. 75, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Risa colony, 22.ix.75. Coll. M. Vasanth, 1 ex, East Khasi Hills, Shillong, 9.iv.76. Coll. A. C. Sukla; 1 ex, East Khasi Hills, Shillong, Risa Colony, 6.ix.76. Coll. K. Kharrangi; 1 ex, East Khasi Hills, Shillong, Risa Colony, 4.xi.76. Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Mylliem 20. iv.78, Coll. M. R. Rynth; 1ex, East Khasi Hills, Upper Shillong, 24.viii.84, donated by St. Peter's School, Shillong.

Diagnostic Characters. 45 to 55 scales round the body; gular scales larger than the ventral.

Green above, with light yellow, orange or brown markings. A light dorso-lateral stripe and another from elbow to the hand usually present; body with light vertical bars; limbs and tail with light spots; dark streaks radiating from the eye; the fold in front of the shoulder black.

Length : Snout to vent 105 mm; tail 290 mm.

Distribution : Khasi Hills, Meghalaya. Myanmar; Yunnan.

22. *Calotes emma* Gray

Calotes emma Gray, *Cat. Liz. Brit, Mus.* 1845, p. 244

Calotes emma Gray, Smith, 1935, *Fauna of British India, II, Sauria,* pp. 1-440.

Material examined : 1 ex, India, Meghalaya, Garo Hills, Dainadubi forest, 14.iv.71, Coll. R. S. Pillai.

Diagnostic Characters. : A spine at the end of the superciliary edge and two more on the occiput, between the tympanum and the nuchal crest.

Olive brown above; a white dorso-lateral broad line starting from the upper labials to above the forelimb; throat brilliant deep peacock blue; light brown below; limbs and tail with brown/black transverse bands or stripes.

Length : Snout to vent 115 mm, tail, 290 mm.

Distribution : Garo Hills, Meghalaya; Assam; Manipur. French Indo-China; Malay Peninsula; Myanmar; Pulo Condore; Siam; Yunnan.

23. ***Calotes versicolor*** (Daudin)

Agama versicolor Daudin, *Hist. Nat. Rept.iii,* 1802, p. 395.

Calotes versicolor (Daudin), Ahmed and Dasgupta, 1991, *Fauna of West Bengal 2* pp 1-65 (in press)

Material examined : 29 ex : 1 ex, East Khasi Hills. Shillong, Motinagar, 5. ix. 61, Coll. S. N. Prasad; 1 ex, East Khasi Hills, Shillong, Kenche's is trace, 20.x.60, Coll. S. N. Prasad; 1 ex, East Khasi Hills, Shillong, Fruit Garden, 17.v.61, Coll. S. K. Sobhani; 1 ex, East Khasi Hills, Umshing, 9.v.63, Coll. V. D. Srivastava; 1 ex, East Khasi Hills, Shillong, Sericulture garden, 4.xii.62, Coll. M. R. Rynth, 1 ex, East Khasi Hills, Shillong, Umshing, 13. viii. 63, Coll. M. R. Rynth; 1 ex, East Khasi Hills, Umshing, 9.v.63, Coll. V. D. Srivastava; 1 ex, East Khasi Hils, Barapani, 18.iv.64, Coll. A. K. Mondal; 1 ex, East Khasi Hills, Umshing, 14.v.64, Coll. M. R. Rynth; 1 ex, East Khasi Hills, Barapani, 17.xi. 69, Coll. N. Majumdar; 1 ex, East Khasi Hills, Barapani, 31.vii.69, Coll. B. Datta; 1ex, East Khasi Hills, Umran, 7.vii.71, Coll. S. K. Talukdar; 1 ex East Khasi Hills, Shillong, Tripura Castle Road, 16.iii.74. Coll. S. N. Prasad; 1 ex, Garo Hills, Rongjeng, 14.iv.73, Coll. S. Biswas; 1 ex, East Garo Hills, Rongrengiri; 18.vi.74. Coll. S. Biswas; 1 ex, East Khasi Hills, Shillong, Risa Colony, 18.vi.74, Coll. R. Mathew, 1 ex, South Garo Hills, Siju IB, 21.ii.71,Coll. G. M. Yazdani; 1 ex, Jaintia Hills, Garampani, 26.i.75, Coll. A. K. Ghosh; 1 ex, East Garo Hills, Rongrengiri, Forest IB, 12.iv.71, Coll, R. S. Pillai; 1 ex, East Khasi Hills, Shella, 19.ix.72, Coll. A. K. Ghosh; 1 ex, East Khasi Hills, Shillong, Tripura Castle Road, 8.v.75, Coll. M. S. Jyrwa; 1 ex, Garo Hills, Antiangiri, 5.xi.78, Coll. K. P. Singh; 1 ex, East Garo Hills, Rongrengiri, 22.iv.72, Coll. S. Biswas; 1 ex, East Garo Hills, Songsak; 11.x.83, Coll. J. R. B. Alfred; 1 ex, West Garo Hills, Anogre, 29.viii.83, Coll. A. Hussain; 1 ex, East Khasi Hills, Shillong, Risa Colony, 17.v.84, Coll. R. Mathew; 1 ex, East Khasi Hills, Kyrdemkulai; 7.xi.83, Coll. R. Zoramthanga; 1 ex, East Khasi Hills, Shillong, 18.iv.85, Coll. R. N. Dey; 1 ex, East Khasi Hills, Ummir, 21.xi.86, Coll. V. T. Darlong.

Diagnostic Characters : Two well separated spines on each side of the back of the head above the ear; dorsal scales larger than the ventrals; pointing backwards and upwards; 35-58 round the body.

Light brown or greyish above, uniform or with more or less distinct dark brown transverse spots or bars upon the back and sides; dark streaks radiating from the eye; young and females often with two light dorsolateral stripes; tail with light and dark annuli.

Length : Snout to vent 105 mm; tail 275 mm.

Distribution : The whole of India; Andamans. Indo-Chinese sburegions; Afghanistan; China, Hainan; Hong-Kong; Malay Peninsula; Sri Lanka; Sumatra.

24. ***Calotes maria*** Gray

Calotes maria Gray, *Cat. Liz. Mus.* 1845, p. 243

Calotes maria Gray, Smith, 1935, *Fauna of British India II, Sauria* pp. 1-440.

Diagnostic Characters : Dorsal scales larger than the ventrals; pointing backwards and upwards; 53 to 63 round the body; two parallel ridges of compressed, more or less spinous scales above the tympanum, the upper ridge continuous with the supraciliary edge, the lower ridge separated from the tympanum by 4 or 5 small scales.

Green above with pale streaks and spots; usually several oblique stripes upon the flank and elongated or rounded spots upon the limbs and tail.

Length : Snout to vent 120 mm; tail 370 mm.

Distribution : Khasi Hills, Meghalaya.

Remarks : Not collected or observed by me.

Genus ***Oriocalotes*** Gunther

Oriocalotes Gunther, *Rept. British India,* 1864, p. 146

Oriocalotes Gunther, Smith, 1935, *Fauna of British India II,* Sauria pp. 1-440.

Diagnostic Characters. : A dwarfed Calotes; differing from *Calotes* in having unequal dorsal scales; dorsal crest not well develooped; no gular sac.

A single species.

25. ***Oriocalotes paulus*** Smith

Calotes minor Gray, *Cat. Liz. British Mus,* 1845, p. 244.

Oriocalotes paulus nom. nov. Smith, *Fauna British India, II Sauria;* 13 : 1935, p. 106

Diagnostic Characters. : A post orbital spine and two more above the ear, the upper and anterior one midway between the nuchal crest and the tympanum; tympanum exposed or concealed by scales; 7 to 9 upper and as many lower labials; dorsal scales strongly keeled, unequal, the larger ones mostly confined to the sides, not markedly differentiated from the smaller ones; the upper scales point backwards and upwards, the lower straight backwards; ventrals smaller than dorsals, stronly keeled and mucronate; a more or less distinct fold in front of the shoulder covered with small granular scales; nuchal crest composed of 8 or 10 short separated spines, dorsal crest a mere denticulation.

Pale brownish-olive, with dark brown spots or marblings, often forming irregular cross-bars; usually dark bars on the forehead, and one from the eye to the angle of the mouth; light brown below; the throat with dark transverse streaks.

Length : Snout to vent 70 mm; tail 130 mm.

Distribution : Khasi Hills, Meghalaya; Sikkim.

Remarks : Not observed by me.

Genus ***Japalura*** Gray

Japalura Gray, *Ann. Mag. Nat. Hist.(2)* xii,1853, p.387

Diagnostic Characters : An obligue fold in front of the shoulder covered with small seals, sometimes extending across the throat; tympanum concealed or exposed; dorsal scales unequal.

26. ***Japalura planidorsata*** Jerdon

Japalura planidorsata Jerdon, *P. Asiat. Soc. Beng.* 1870, p.76.

Japalura planidorsata Jerdon, Smith, 1935, *Fauna of British India,* Vol. II, pp. 440.

Diagnostic Characters : Tympanum concealed; Occiput with numerous spinose tubercles; body subquadrangular, the back bordered on each side by a ridge of scales and crossed at intervals by 6 or 7 V-shaped series of similar scales or subtrihedral tubercles; flanks with numerous enlarged, scattered, strongly keeled scales; Ventrals strongly keeled; a short fold in front of the shoulder; tail compressed.

Yellowish-brown or brown above, lighter below; a more or less distinct series of dark streaks across the back, corresponding in position to the angular series of scales, upper lip light yellow.

Length : Snout to vent 50 mm; tail 90 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Assam.

Remarks : Not studied by me.

Family 6 SCINCIDAE

Key to the genera of Scincidae

1. Supra nasals absent.....***Sphenomorphus***
   Supranasals present, limbs well developed.....***Mabuya***

Genus ***Sphenomorphus*** Fitzinger

Lygosoma Hardwicke and Gray. *Zool. Journ. iii.* 1827,p. 228

Lygosoma Hardwicke and Gray, Smith, 1935, *Fauna of British India, II,* Sauria, pp. 1 440

Diagnostic Characters : Head shields distinct, no supranasal; ear opening distinct.

Key to the Species of ***Sphenomorphus*** Fitzinger

1. The adpressed limbs overlap.....2
   The adpressed limbs do not overlap.....*courcyanum*
2. Rostral convex..... *indicum indicum*
   Rostral concave.....*maculatum*

27. ***Sphenomorphus courcyanum*** Annandale

Lygosoma courcyanum Annandale, *Rec. Ind. Mus. viii,* 1912, p. 43.

Lygosoma courcyanum Annandale, Mathew, 1982, *J. Bombay nat. Hist. Soc.* 79(1) 208-209.

Material examined : 1 ex. India, Meghalaya, East Khasi Hills, Mawphlang, 21. ix-73, Coll. A.K. Ghosh.

Diagnostic Characters: Rostral in contact with the fronto-nasal, prefrontals in good contact with one another, frontal shorter trhan the fronto-parietals and inter-parietals together; parietals in contact with one another behind the inter-parietal; no nuchals; two loreals, the posterior triangular in shape, its apex downwards; 7 upper labials; ear opening with smooth border all around; body scales smooth, 26 scales round the middle of the body; a pair of enlarged preanals; tail thick at the base.

Brown above, with darker spots; a dark brown dorsolateral stripe edged above by a light one present; flanks speckled with brown; whitish below.

Length : Snout to vent 54 mm; tail 36 mm.

Distribution : Khasi Hills, Meghalaya; Assam.

Remarks : Mathew (1982) recorded this species for the first time from North East India and observed the following : "Distance between the end of the snout and forelimb contained 2 times in the distance between axilla and groin. Prefrontal not in contact with one another. 70 scales down the middle of the back. Limbs short, far apart when adpressed. Total length from snout to vent 54 mm, tail 36 mm. This specimen has an abnormal foot with only a single free digit. The other digits are not differentiated and the sole ends in a conical mass"

28. *Sphenomorphus indicum indicum* (Gray)

Hinulia indica Gray, *Ann. Mag. Nat. Hist. (2) xii,* 1853, p. 388.

Sphenomorphus indicum indicum (Gray) Ahmed & Dasgupta, 1991, *Fauna of West Bengal,* 2, pp. 1-65 (in Press)

Material examined : 50 ex : 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Sericulture garden, 22. viii. 60, Coll. S. N. Prasad; 1ex, East Khasi Hills, Shillong, Bishnupur, 16. viii. 60, Coll. S.N. Prasad; 1 ex, East Khasi Hills, Shillong, Bishnupur, 6. ix. 61, Coll. S.N. Prasad; 1 ex, East Khasi Hills, Mawphlang, 19. iv. 69, Coll. B. Dutta; 1 ex, East Khasi Hills, Shillong, Fruit Garden, 18. ix. 68, Coll. S.K. Talukdar; 1 ex, East Khasi Hills, Umran, 19. vii. 62, Coll. S.N. Prasad; 1 ex, East Khasi Hills, Shillong , 13. iv. 62, Coll. S.K. Sobhani; 1 ex, East Khasi Hills, Shillong, 20. xii. 60, Coll. S.N. Prasad; 1 ex, East Khasi Hills, Shillong, Risa Colony, 19. iii. 61, Coll. S.N. Prasad; 1 ex, East Khasi Hills, Umphyrnai, 5. v. 64, Coll. S. Biswas; 1 ex, East Khasi Hills, Shillong, Motinagar, 14. ii. 61, Coll. S.N. Prasad; 1 ex, East Khasi Hills Shillong, Sericulture garden, 4 xii. 62, Coll. M.R. Rynth; 1 ex, East Khasi Hills, Umtham, 22. vii. 69, Coll. B. Dutta; 1 ex, East Khasi Hills, Shillong, Motinagar, 23. iii. 63, Coll. M.R. Rynth; 1 ex, East Khasi Hills, Shillong, Nongthymmai, 6. viii. 73, Coll. M.S. Jyrwa; 1 ex, East Khasi Hills, Umshin g, 14.v.64, Coll. M.R. Rynth; 2 ex, East Khasi Hills, Mawphlang, 18.iv.67, Coll. R.K. Varshney; 1 ex, East Khasi Hills, Shillong, Risa Colony, 21.iv.72, Coll. K. Deb; 1 ex, East Khasi Hills, Shillong, Motinagar forest, 21.ix.73, Coll. M.S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Motinagar, 24.ii.71, Coll. R.S. Giri; 1 ex, East Khasi Hills, Upper Shillong, 24.v.74, Coll. M.S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 6.v.72, Coll. A. C. Sukla; 1 ex, East Khasi Hills, Shillong, Risa Colony, 5.ix.74, Coll. M. Vasanth; 1 ex, East Khasi Hills, Shillong, Botanical garden, 31.viii.74, Coll. R.S. Giri; 1 ex, East Khasi Hills, Mawroh, 14.v.64, Coll. M.R. Rynth; 2 ex, South Garo Hills, Siju Cave, 6.iii.65, Coll. A.S.Rajagopal; 2 ex. East Khasi Hills, Shillong, Risa Colony, 18.v.74, Coll. A.K.Ghosh; 1 ex, East Khasi Hills, Shillong, Fruit Garden, 18.vi.66, Coll. S.K. Sobhani; 1 ex, East Khasi Hills, Shillong, Motinagar forest, 23.viii.75, Coll. M.S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Tripura Castle Road, 22.viii.75, Coll. M.S.Jyrwa; 1 ex, East Khasi Hills, Shillong, Malki forest, 26.viii.75, Coll. M.S. Jyrwa;1 ex; East Khasi Hills, Laitkor forest, 18.ix.75, Coll. M.S.Jyrwa; 1 ex, East Khasi Hills, Shillong, Motinagar, 12.viii.75,

Coll. R.S. Giri; 1 ex, East Khasi Hills, Mawphlang, 6.ix.75, Coll. S.K.Chanda; 1 ex. East Khasi Hills, Shillong, Golflinks, 5.ix.75, Coll. M.S.Jyrwa; 1 ex, East Khasi Hills, Shillong, Nongrim Hills, 11.ii.75, Coll. R.K. Rai, 1 ex, East Khasi Hills, Shillong, Risa Colony, 8.vi.76, Coll. P.B. Thapa;1 ex, East Khasi Hills, Shillong, Motinagar, 21.xii.76, Coll. M.S.Jyrwa; 1 ex, East Khasi Hills, Shillong, Fruit Garden, 4.v.77, Coll. M.S. Jyrwa; 2 ex, East Khasi Hills, Laitkor Peak, 8.v.78, Coll. S.J.S.Hattar; 2 ex, East Khasi Hills, Byrnihat, 21.iv.81, Coll. J.P. Sati; 1 ex, East Khasi Hills, Upper Shillong, 24.viii.84, donated by St. Peter's School, Shillong; 1 ex, East Khasi Hills, Shillong, Risa Colony, 15.v.79, Coll R. Mathew; 1 ex, East Khasi Hills, Mawphlang, 20.viii.86, Coll. R. Mathew; 1 ex, West Khasi Hills, 23 km from Nongstoin on Syrkom Road, 8.iv.87, Coll. J.R.B. Alfred; 1 ex, West Khasi Hills, Phutbali, 6.iii.89, Coll. V.T. Darlong.

Diagnostic Characters : Rostral in broad contact with the frontonasal; prefrontals separated from one another; frontal as long or longer than the fronto-partietal and interparietal together, the latter not separating the parictals posteriorly; four large supra oculars followed by two very small ones; ear opening may or may not with few granules on the anterior border; tympanum deeply sunk; seven supralabials; 30 to 39 scales round the middle of the body; a pair of enlarged preanals; 16-22 keeled lamellae beneath the 4th toe; palm and sole covered with conical tubercles.

Brown above, uniform or with small brown or black spots usally arranged in longitudinal lines; a dark brown or black stripe along the sides of the head, body and tail, clearly defined above, where it is edged with whitish; the lower edge may be broken into spots.

Length : Snout to vent 92 mm; tail 107 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Andaman & Nicobar Islands; Sikkim; West Bengal. China; Hainan; Indo-China; Malay Peninsula; Tibet.

29. ***Sphenomorphus maculatum*** (Blyth)

Lissonota maculata Blyth, *J.Asiat. Soc. Beng.* xxii, 1853, p. 653.

Lygosoma maculatum (Blyth) Ahmed & Dasgupta 1991, *Fauna of West Bengal,* 2, pp. 1-65 (in press)

Material examined : 26 ex: 2 ex, India, Meghalaya, East Khasi Hills, Nongpoh, 25.viii.72, Coll. A.K. Ghosh; 3 ex, East Garo Hills, Rongjeng, 12.iv.72, Coll. S. Biswas; 1 ex, East Khasi Hills, Cherrapunjee, Mawsmai cave, 21.iii.72, Coll. R.S. Pillai; 1 ex, East Garo Hills , Darugiri forest, 12.iv.71, Coll. R.S.Pillai; 2 ex, East Garo Hills, Daina Dubi Forest, 9 km. South of Dudhnai IB, 9.iv.71, Coll. R.S.Pillai; 2 ex, East Khasi Hills, Cherrapunjee, 8.i.69, Coll. B. Datta; 1 ex, East Khasi Hills, Cherrapunjee,Mawblong tower, 9.v.72, Coll.G.M. Yazdani; 1 ex, East Khasi Hills, Cherrapunjee, Mawblong, 21.iii.72, Coll. R.S. Pillai; 1 ex, Garo Hills, Rongtham, 11.iv.73, Coll. S. Biswas; 1 ex, East Khasi Hills, Cherrapunjee, Mawblong, 22.ix.70, Coll. G.M.Yazdani; 1 ex, East Garo Hills,Selbalgiri, 25.ii.75, Coll. S.Biswas; 1 ex, Jaintia Hills, Shangpung, 10 km North of Jowai IB, 7.xii.75, Coll. S.K.Chanda; 1 ex, East Khasi Hills, Cherrapunjee, Mawblong, 21.iv.73, Coll. R.S.Pillai; 1 ex, East Khasi Hills, Shillong, Malki, 8.ix.76, Coll. M.S. Jyrwa; 1 ex, East Khasi Hills, Shillong, 10.ii.80, Coll. R. Mathew; 1 ex, East Khasi Hills, Byrnihat, 22.iv.82, Coll. J.P. Sati; 1 ex, East Garo Hills, Songsak, 11.x.83, Coll. J.R.B. Alfred; 1 ex, West Khasi hills,

Mawpathar, 35 Km after Nongstoin towards Sonapahar 30.x.86, Coll. C. Radhakrishnan; 3 ex, West Khasi Hills, 10 Km. South West of Nongstoin on Syrkon Road, 29.i.87, Coll. K.P. Singh.

Diagnostic Characters : Rostral flat or concave, in contact with the fronto-nasal; prefrontals separated from one another; frontal as long or longer than the fronto-parietals and interparietals together, the latter not separating the parietals behind; 7 upper labials; 38 to 42 scales round the middle of the body; a pair of large preanals; tail almost twice the length of the body; 16-22 keeled lamellae under 4th toe; palms covered with conical tubercles, on the soles of the feet they are confined to the inner and posterior part.

Brown above with small light spots and two median series of small black spots; a dark brown or black lateral band more or less spotted with white and usually edged below with white extends the length of the body; lower parts of the flanks more or less thickly speckled with black and white; tail a lighter shade; whitish below.

Length : Snout to vent 65 mm; tail 107 mm.

Distribution : Khasi, Garo and Jaintia Hills, Meghalaya; Assam; Mizoram; Nagaland; West Bengal; Andaman and Nicobar Islands. Annam; Cambodia; Myanmar; Siam; Yunnan.

Genus ***Mabuya*** Fitzinger.

Mabuya Fitzinger, *Class. Rept.* 1826, pp. 23 & 52.

Mabuya Fitzinger, Smith, 1935, *Fauna of British India, II, Sauria,* pp. 1-440.

Diagnostic Characters : Eyelids movable, the lower with or without a more or less transparent disc. tympanum more or less deeply sunk.

Key to the species of *Mabuya* Fitzinger

1. A post nasal present.....2

   Post nasal absent.....*carinata*

2. 28 to 30 scales round the body; dorsals with 5, 7 or 9 strong keels; 12 to 17 lamellae under the 4th toe .....*macularia*

   30 to 34 scales round the body, dorsals with 3 or 5 keels; 17 to 23 lamellae under the 4th toe..... .....*multifasciata*

30. ***Mabuya carinata*** (Schneider)

Scincus carinatus Schneider, *Hist. Amphib. ii,* 1801, p. 183,

Mabuya carinata (Schneider) Ahmed & Dasgupta, 1991, *Fauna of West Bengal, 2,* pp. 1-65 (in press)

Diagnostic Characters : Supranasals separated from or just touching one another; prefrontals usually in contact with one another; a pair of nuchals; ear opening subcircular, with short pointed lobules anteriorly; 14 to 18 lamellae under the 4th toe.

Brown or bronzy above, uniform or with dark brown or black spots or longitudinal streaks along the lateral margins of the scales; sides darker with or without light spots; a light dorso-lateral line starting from above the eye and continued to the base of the tail usually distinct; a second white line starting from the upper lip and passsing along the side of the flank to the groin present or absent.

Length : Snout to vent 125 mm; tail 165 mm.

Distribution : Khasi Hills, Meghalaya; Mizoram; West Bengal; Indian Peninsula. Sri Lanka.

Remarks : No material studied from Meghalaya.

31. ***Mabuya macularia*** (Blyth)

Euprepes macularius Blyth, J. Asiat. Soc. Beng. xxii, 1853, p. 652.

Mabuya macularia (Blyth), Ahmed & Dasgupta, 1991, Fauna of West Bengal, 2, 1-65 (in press)

Material examined : 8 ex; 1 ex, India, Meghalaya, South Garo Hills, Dobigiri, 5 km from Baghmara, 9.ii.71, Coll. G. M. Yazdani; 1 ex, East Garo Hills, Rongjeng, 12.iv.73, Coll. S. Biswas; 2 ex, East Garo Hills, Darugiri,Daina Dubi forest, 15.iv.71, Coll. R. S. Pillai; 1 ex, East Khasi Hills, Barapani, 5.xi.75, Coll. Ashish John; 1 ex, East Khasi Hills, Old Barapani, 23.iv.77, Coll. A. R. Lahiri; 1 ex, East Khasi Hills, Shillong, Fruit Garden, 24.vi.81, Coll. P. B. Thapa; 1 ex, West Garo Hills, Anogre, 29.viii.83, Coll. A. Husain.

Diagnostic Characters : Supranasals separated from one another; pre-frontals separated from onc another or just touching one another; a pair of nuchals and a post nasal may or may not be present; 28 to 30 scales round the body; dorsals with 7 or 9 distinct keels.

Brown above, with a broad, dark brown vertebral stripe, edged on either side with black, or the stripe may be broken up into a series of elongate spots; flanks dark brown, usually spotted with white.

Length : Snout to vent 75 mm; tail 82 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Assam; Bihar, Orissa, Uttar Pradesh; West Bengal. Annam; Cambodia; Malay Peninsula; Myanmar; Siam.

32. ***Mabuya multifasciata multifasciata*** (Kuhl)

Scincus mujltifasciatuws Kuhl, *Beitr. Zool. Vergl. Anat.* 1820, p. 126.

Mabuya multifasciata multifasciata (Kuhl), Ahmed & Dasgupta, 1991, *Fauna of West Bengal,* 2, pp. 1-65 (in press)

Material examined : 5 ex: 1 ex, India, Meghalaya; Jaintia Hills, Dawki, 18.v.72, Coll. S. Biswas; 1 ex, East Garo Hills, Darugiri, Baghmara, 12.iv.71, Coll. R. S. Pillai; 1 ex, South Garo Hills, Dobigiri, 5 km from Baghmara, 19.ii.71, Coll. G. M. Yazdani; 1 ex, Jaintia Hills, Dawki, 13.ix.83, Coll. A. Hussain; 1 ex, Jaintia Hills, Dawki, 14.ix.83, Coll. A. Hussain.

Diagnostic Characters : Supranasals separated from or just touching one another; prefrontals usually in contact with one another; a pair of nuchal, a post nasal; ear opening subcircular with small, pointed lobules anteriorly; 30-34 scales round the middle of the body; dorsals with 3 or 5 keels.

Brown or olive brown above, uniform or with dark brown or black longitudinal spots or streaks along the lateral margins of the scales; flanks dark-brown or black, with or without white black edged spots; a pale dorsolateral line often present; upper head scales often margined with black; whitish below.

Length : Snout to vent 116 mm; tail 220 mm.

Distribution : Jaintia and Garo Hills, Meghalaya; Assam; Manipur; Nagaland; Nicobar Island; West Bengal. East Indies; Hainan; Malay Peninsula; New Guinea; Pulo Condore; Tongking; Yunnan.

Family 7 LACERTIDAE

Genus ***Takydromus*** Daudin

Takydromus Daudin, *Hist. Nat. Rept. iii.* 1802, p. 251

Takydromus Daudin, Smith, 1935, *Fauna of British India, II, Sauria,* pp. 1-440.

Diagnostic Characters : Body dorsally with large, strongly keeled plates which form continuous lines; ventral plates large, imbricate, the outer always keeled; 3 pairs of submaxillary shields, the first 2 pair in contact with their fellows.

Key to the species of ***Takydromus*** Daudin

Scales on the flanks granular; 7 to 10 in a vertical series..... *sexlineatus sexlineatus*

Scales on the flanks pointed, 3 to 5 in a vertical series..... *sexlineatus khasiensis*

33. ***Takydromus sexlineatus khasiensis*** Boulenger

Tachydromus sexlineatus, Boulenger, *Fauna Brit. India* ., 1890, p. 169.

Tachydromus khasiensis Boulenger, *Mem. Asiat. Soc. Beng. v.* 1917, p. 221.

Takydromus sexlineatus khasiensis Boulenger, Smith, 1935, *Fauna of British India, II, Sauria,* pp. 1-440.

Material examined : 7 ex : 2 ex, India, Meghalaya, East Khasi Hills, Laitkor, 5.vii.67, Coll. R. K. Varshney; 2 ex, East Khasi Hills, Cherrapunjee, 23.iv.70, Coll. G. M. Yazdani; 3 ex, East Khasi Hills, Weiloi, 26.iv.72, Coll. S. Biswas.

Diagnostic Characters : Fronto-nasal broader than long; scales on the flanks large, pointed, keeled, bordered above and below by larger stronbgly keeled scales, 3 to 5 small scales in a vertical series between the larger ones; 2 or 3 femoral pores on each side.

Green or greenish-brown above with metallic glow; a light dorso-lateral stripe, bordered above and below with black spots, from the eye to the base of the tail; a black streak along the side of the head through the ear, and along the flank to the hind-limb. Lower parts greenish-white.

Length : Snout to vent : 53 mm, tail 160 mm.

Distribution : Khasi Hills, Meghalaya; Assam. Myanmar.

34. ***Takydromus sexlineatus sexlineatus*** Daudin

Takydromus sexlineatus Daudin, *Hist. Nat. Rept. iii,* 1802, p. 256.

Takydromus sexlineatus sexlineatus Daudin, Smith, 1935, *Fauna of British India, II, Sauria,* pp. 1-440.

Material examined : 1 ex, India, Meghalaya, Jaintia Hills, Myntru, 11.xii.63, Coll. A. S. Rajagopal.

Diagnostic Characters : Nasals in contact with each other behind the rostral, rarely separated by the fronto-nasal. Prefrontals in contact with each other; an indistinct collar; 17 to 24 gular scales on a line between submaxillary shields and collar; dorsal plates in 4 rows across the back; ventrals strongly keeled, in 10 longitudinal rows; 21 to 28 scales between collar and groin; a large preanal plate.

Males brown or greenish-brown above, with a metallic gloss; a light dorso-lateral stripe, usually bordered with black, starting from above the eye and extending on to the base of the tail; flanks with or without a series of white, black edged ocelli; upper head shields and upper parts of tail with small black spots; lower parts and upper lip greenish-white; females are a shade lighter with much indistinct dorso-lateral stripes and the ocelli on the flanks are absent.

Length : Snout to vent 54 mm; tail 145 mm.

Distribution : Jaintia Hills, Meghalaya. Myanmar; Sumatra; Java; Borneo

Family 8 ANGUIDAE

Genus ***Ophisaurus*** Daudin

Ophisaurus Daudin, *Hist. Nat. Rept. vii,* 1803, p. 346.

Ophisaurus Daudin, Smith, 1935, *Fauna of British Inhdia, II, Sauria,* pp. 1-440.

Diagnostic Characters : Without limbs; a lateral fold present; scales squarish-rhomboidal, forming straight longitudinal and transverse series.

35. ***Ophisaurus gracilis*** (Gray)

Burmese Glass Snake (Col. Photo 9)

Pseudopus gracilis Gray, *Cat. Liz. Brit. Mus.* 1845, p. 56.

Ophisaurus gracilis (Gray), Ahmed & Dasgupta, 1991, *Fauna of West Bengal, 2,* pp. 1-65 (in press)

Material examined : 16 ex : 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Nongthymmai, 14.viii.65, Coll. P. K. Das; 2 ex, East Khasi Hills, Shillong, Lawsohtun, 26.vi.67, Coll. S. D. Sangma; 2 ex, East Khasi Hills, Mawphlang forest, 27.x.67, Coll. F. D. Nongkhlaw; 1 ex, East Khasi Hills, Shillong, Woodland compound. 18. viii. 73, Coll. A. S. Rao; 1 ex, East Khasi Hills, Barapani, 24.ii.73, Coll. A. Andrew; 1 ex, East Khasi Hills, Shillong, Pologround, 9.viii.65, Coll. A. S. Rao; 1 ex, East Khasi Hills, Shillong, Laban, 12.viii.74, Coll. A. R. Lahiri; 1 ex, East Khasi Hills, Shillong, Risa Colony, 19.v.75, Coll. M. Vasanth; 1 ex, East Khasi Hills, Shillong, Motinagar forest, 15.v.75, Coll. R. Zoramthanga; 1 ex, East Khasi Hills, Shillong, Malki forest, 8.vii.76, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 5.v.81, Coll. P. B. Thapa; 1 ex, Jaintia Hills, Jowai, Umlatham river side, 10.ix.83, Coll. A. Hussain; 1 ex, East Khasi Hills, Shillong, Lawsohtun, 1.iv.72, Coll. S. D. Sangma. 1ex, East Khasi Hills, Shillong, Nongthymmai, 3.iii.76, Coll. M.S. Jyrwa.

Diagnostic Characters : Three shields in a line between nasal and prefrontal; five supraoculars; dorsal scales keeled, in 14 to 16 longitudinal and 88 to 94 transverse series; ventrals smooth in 10 longitudinal series; tail twice the length of head and body.

Light brown above with a darker lateral band and irregular transverse series of blue, black edged spots, imparting to it a bright blue-green metallic sheen in life; sometimes a series of vertebral spots; below pale brownish or yellowish.

Length : Snout to vent : 180 mm; tail 280 mm.

Distribution : Khasi and Jaintia Hills, Meghalaya; Assam; Eastern Himalayas, West Bengal; Myanmar.

Family 9 WARANIDAE

Genus ***Varanus*** Merrem

Varanus Merrem, *Tant. Syst. Amphib.* 1820, p.58.

Varanus Merrem, Smith, 1935, *Fauna of British India, II, Sauria,* pp. 1-440.

Diagnostic Characters : Head covered with small juxtaposed scales; back with roundish or oval scales, surrounded by rings of granules; ventral scales arranged in transverse series; a pair of preanal pores.

Key to the species of ***Varanus*** Merrem

1. Nostril nearer to the orbit than to the end of the snout..... *bengalensis*
   Nostril nearer to the end of the snout than to the orbit.....2
2. Nuchal scales larger than those on the crown of head, snout convex ..... *flavescens*
   Nuchal scales smaller than those on the crown of head, snout depressed ..... *salvator*

36. ***Varanus bengalensis*** (Daudin)

Indian Monitor
(Col. Photo 10)

Tupinambis bengalensis Daudin, *Hist. Nat. Rept. iii,* 1802, p. 67.

Varanus bengalensis (Daudin), Ahmed & Dasgupta, 1991, *Fauna of West Bengal,* 2, pp. 1-65 (in press).

Material examined : 4 ex : 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Laban, 21.xi.61, purchased; 1 ex, East Khasi Hills, Shillong, Umrisa near Crinoline view, 9.ii.70, Coll. Amster Lyngdoh; 1 ex, East Khasi Hills, Mylliem, 24.iv.72, Coll. A. Thalibah; 1 ex, East Garo Hills, Selbalgiri, 2.v.84, Coll. J. P. Sati.

Diagnostic Characters : Scales on the crown of the head larger than the nuchal scales; supra ocular scales small, subequal; abdominal scales smooth, in 90 to 110 transverse rows. Tail strongly compressed with a low double-toothed crest above; lateral caudal scales keeled.

Young dark olive, with numerous light spots or ocelli more or less transversely arranged and often alternating with dark spots or bar; top of head with light spots; lower parts whitish with narrow dark transverse bars which may be broken up into spots;

Adults brownish or olive above, usually with blackish dots; lower parts yellowish, uniform or mottled with black.

Length : Snout to vent 750 mm; tail 1000 mm.

Distribution : Khasi and Garo Hills, Meghalaya; the whole of India. Myanmar; Nepal; Pakistan; Persia; Sri Lanka.

37. ***Varanus salvator*** (Laurenti)

Water Monitor

Stellio salvator Laurenti, *Sys. Rept.* 1768 (based on Seba's Illustr. ii, pl. 88, fig. 2)

Varanus salvator (Laurenti), Ahmed & Dasgupta, 1991, *Fauna of West Bengal, 2,* pp. 1-65 (in press)

Diagnostic Characters : Snout depressed at the end; median supraoculars transversely enlarged; dorsal scales keeled; tail strongly compressed with a low double-toothed crest above.

Adults dark olive above with indistinct yellow spots; young with bright yellow rings on a dark skin.

Total length : Snout to vent 1000 mm; tail 1500 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Andaman and Nicobar Islands; Assam; Orissa; Nagaland; West Bengal; Bangladesh. and Sri Lanka.

38. ***Varanus flavescens*** (Gray)

Yellow Monitor

Monitor flavescens Gray, *Zool. Journ. iii,* 1827, p. 226.

Varanus flavescens (Gray), Ahmed & Dasgupta, 1991, *Fauna of West Bengal, 2,* pp. 1-65 (in press)

Diagnostic Characters : Snout short, convex; nostril an oblique slit, a little nearer to the tip of the snout than to the orbit; abdominal scales smooth, in 65 to 75 transverse rows; tail strongly compressed with a low double-toothed crest above.

Young are dark brown above with yellow spots or bars. Colour fade as age advances and adults are banded with alternating transverse bars of reddish-brown and dirty yellow.

Total length : Snout to vent 365 mm; tail 465 mm.

Distribution : East Khasi Hills, Meghalaya; Andaman and Nicobar Islands; West Bengal. Australia; Bangladesh; China; East Indian Archipelago; Indo-China; Sri Lanka.

DISTRIBUTION OF SAURIA IN MEGHALAYA

		Khasi Hills	Garo Hills	Jaintia Hills
1.	*Cyrtodactylus khasiensis* (Jerdon)	+	+	–
2.	*Cnemaspis jerdoni* (Theobald)	–	+	–
3.	*Teratolepis fasciata* (Blyth)	+	–	–
4.	*Cosymbotus platyurus* (Schneider)	+	+	+
5.	*Hemidactylus brooki* Gray	–	+	–
6.	*H. frenatus* Schlegel	–	+	+
7.	*Gekko gecko* (Linnaeus)	–	+	–
8.	*Ptyctolaemus gularis* Peters	+	–	+
9.	*Calotes emma* Gray	–	+	–
10.	*C. jerdoni* Gunther	+	–	–
11.	*C. maria* Gray	–	+	–
12.	*C. versicolor* (Daudin)	+	+	+
13.	*Oriocalotes paulus* Smith	+	–	–
14.	*Japalura planidorsata* Jerdon	+	+	–
15.	*Sphenomorphus courcyanum* Annandale	+	–	–
16.	*S. indicum indicum* (Gray)	+	+	–
17.	*S. maculatum* (Blyth)	+	+	+
18.	*Mabuya carinata* (Schneider)	+	–	–
19.	*M. macularia* (Blyth)	+	+	–
20.	*M. multifasciata multifasciata* (Kuhl)	–	+	+
21.	*Takydromus sexlineatus khasiensis* Boulenger	+	–	–
22.	*T. sexlineatus sexlineatus* Daudin	–	0	+
23.	*Ophisaurus gracilis* (Gray)	+	–	+
24.	*Varanus bengalensis* (Daudin)	+	+	–
25.	*V. flavescens* (Gray)	+	–	–
26.	*V. salvator* (Laurenti)	+	+	–

NB.

+ = occurrence

– = non occurrence

Sub-Order (ii) SERPENTES

Key to the families of Serpentes

1. Eyes vestigial, covered by scales; body worm like ..... Typhlopidae
   Eyes developed, exposed; body not worm like 2
2. Vestiges of hind limbs present ..... Boidae
   Vestiges of hind limbs absent 3
3. Poison fangs absent in the front of the mouth ..... Colubridae
   Poison fangs present in the front of the mouth 4
4. Head shields symmetrical ..... Elapidae
   Head shields asymmetrical ..... Viperidae

Family -10 TYPHLOPIDAE

Key to the genera of the family Typhlopidae

1. Suture of the nasal shield touching the preocular instead of the 2nd labial.... ***Ramphotyphlops***
   Suture of the nasal shield touching the 2nd labial ..... ***Typhlops***

Genus ***Ramphotyphlops*** Fitzinger 1843

Ramphotyphlops Fitzinger, Stimson, 1977, *Bull. zool. Nomencl.* 33, (3/4), 204-207.

Ramphotyphlops Fitzinger, Murthy, 1986, *The Snake Book of India*, pp. 101.

39. ***Ramphotyphlops braminus*** (Daudin)

Brahminy Blind Snake

(Col. Photos 11 and 12)

Eryx braminus Daudin, 1803, *Hist. Nat. Rept.* vii, p. 27.

Ramphotyphlops braminus (Daudin), Murthy, 1986, *The Snake Book of India*, pp. 101.

Material examined : 9 ex : 2 ex, India, Meghalaya; East Khasi Hills, Umran, 18.v.67, Coll. R. K. Varshney; 1 ex, East Khasi Hills, Barapani, Feb. 1975, Coll. Ashish John; 4 ex, West Garo Hills, Anogiri lake area, 30.viii.83, Coll. A. Hussain; 1 ex, East Khasi Hills, La-ilad, 12.iii.87, Coll. V.T. Darlong.

Diagnostic Characters : Snout rounded and strongly projecting; rostral 1/3 to 1/4 the breadth of the head; 20 rows of scales round the body; 290-320 transverse rows of scales.

Brown or blackish above, lighter below; snout, anal region and end of tail whitish.

Total length : 146 mm.

Distribution : Khasi and Garo Hills, Meghalaya; throughout India. Arabia; China; Hainan; Indo-China; Malay Peninsula; Persia; Sri Lanka.

Remarks : Common blind snake of the Oriental region, maximum length recorded is 170 mm.

Genus ***Typhlops*** Oppel

Blind Snakes

Typhlops Oppel, 1811, *Ordn. Rept.* p. 54.

Typhlops Oppel, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Head not distinct from neck; eyes vestigial; mouth inferior; tail short; worm like in appearance.

Key to the species of ***Typhlops*** Oppel

1. 22 Scales round the body 2

   24 or 26 scales round the body ..... *diardi*

2. Breadth of rostral 1/4 to 2/5 that of the head; nasal completely divided ..... *jerdoni*

   Breadth of rostral 1/2 that of the head; nasal incompletely divided ..... *tenuicollis*

40. ***Typhlops diardi*** Schlegel

Diard's Blind Snake

(Col. Photo, 13)

Typhlops diardi Schlegel, 1839, *Abbild. Amphib.* p. 39.

Typhlops diardi Schlegel, Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 12 ex; 1 ex, India, Meghalaya, East Khasi Hills, Mawroh, 14.v.64, Coll. M. R. Rynth; 1 ex, East Khasi Hills, Shillong, 3.vii.65, Coll. K. B. Khattri; 1 ex, East Khasi Hills, Umtham, 23.vii.71, Coll. S. Biswas; 1 ex, East Khasi Hills, Shillong, Lawsohtun, 26.vi.67, Coll. S. D. Sangma; 1 ex, East Khasi Hills, Shillong, Bishnupur, 20.v.70, Coll. S.J.S. Hattar; 1 ex, East Khasi Hills, Shillong, Motinagar forest, 18.ix.74, Coll. R. Zoramthanga; 1 ex, South Garo Hills, Baghmarah, 1.iv.76, Coll. S. Biswas; 1 ex, East Khasi Hills, Shillong, Golflinks, 31.v.76, Coll. K. Deb; 1 ex, East Khasi Hills, Shillong, Pynthorumkhrah, 28.x.77, Coll. K. Deb; 1 ex, East Khasi Hills, Umtasor, 25.iv.84, Coil. R. Mathew; 1 ex, West Garo Hills, Selbalgiri, 20.iv.85, Coll. J. R. B. Alfred 1ex, East Khasi Hills, Nongpoh, 25.viii.72, Coll. A.K. Ghosh.

Diagnostic Characters : Snout rounded, strongly projecting; rostral 1/3 to 3/5 the breadth of the head; prefrontals in contact with the rostral; 24-26 or 28 scales round the body; 260-300 transverse rows of scales

Total length : 500 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Assam; Nagaland; West Bengal. French Indo-China; Malay Peninsula and Archipelago; Myanmar ; Siam.

41. ***Typhlops jerdoni*** Boulenger

Typhlops jerdoni Boulenger, 1890, *F. B. I.*, p. 238.

Typhlops jerdoni Boulenger, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Nostril lateral; snout strongly projecting; rostral narrow, its breadth 1/4 to 2/5 that of the head; nasal completely divided; eye very distinct; tail ending in spicule; 22 rows of scales round the body; 260-280 transverse rows of scales.

Dark brown or blackish above, light brown below; snout and anal region whitish.

Total length : 280 mm.

Distributrion : Khasi Hills, Meghalaya; Assam; Sikkim; West Bengal.

42. ***Typhlops tenuicollis*** (Peters)

Onychocephalus (Ophthalmidion) tenuicollis Peters, 1864, *Mon. Akad. Berlin,* p. 272.

Typhlops tenuicollis (Peters) Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 1 ex, India, Meghalaya, East Garo Hills, Selbalgiri, 28.iv.88, Coll. V. T. Darlong and J. P. Sati.

Diagnostic Characters : Snout rounded, strongly projecting; rostral half as broad as the head, extending to the level of the occular shields; eye just distinguishable; supraocular twice as long; nasal incompletely divided, 22 scales round the body; 480-520 transverse rows of scales.

Total length : 320 mm.

Distribution : Garo Hills, Meghalaya; Nagaland.

Family 11 BOIDAE

Genus ***Python*** Daudin

Python Daudin, 1803, *Mag. Encycl. An. 8*, p. 434.

Diagnostic Characters : Head distinct from neck; rostral, anterior upper labials and lower labials pitted; pupil vertical; scales in 60-75 rows; ventrals narrow; caudals paired.

43. ***Python molurus*** (Linnaeus)

(Col. Photo 14)

Coluber molurus Linnaeus. 1758, *Syst. Nat. 10th Ed.* p. 225.

Python molurus (Linnaeus) Murthy, 1986, *The Snake Book of India,*pp. 101.

Material examined : 1 ex, India, Meghalaya, East Khasi Hills, Burnihat, 18.ix.68, Coll. A.S. Rao.

Diagnostic Characters : Rostral with a deep pit on either side; 2 pairs of prefrontals, the posterior pair smaller and often broken up; 2 pre and 3-4 post oculars; 11-13 upper labials, the first 2 deeply pitted; scales in 60-75 rows; ventrals 245-270; caudals 58-73, paired; Anal 1.

Total length : 1.2 meters

Distribution : Khasi hills, Meghalaya; Arunchal Pradesh; Assam; Manipur; Mizoram; Nagaland; Tripura; West Bengal. Peninsular India; China; Hainan; Hong-Kong; Sri Lanka.

Family -12 COLUBRIDAE

Key to the subfamilies of Colubridae

1. Mental groove present 2
   Mental groove absent ..... Dipsadinae
2. Scales imbricate ..... Colubrinae
   Scales completely or almost completely attached to the cutis ..... Xenoderminae

Sub family DIPSADINAE

Genus ***Pareas*** Wagler

Snail eating Snakes

Pareas Wagler, 1830, *Syst. Amphib.*, p. 181.

Pareas Wagler, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Eye large with vertical pupil; scales in 15 rows; usually the first pair of genials largest, longer than broad, in contact with the mental or separated from it by the first pair of lower labials. A single species *monticola*, is represented in Meghalaya.

44. ***Pareas monticola*** (Cantor)

Assam Snail-Eater

(Col. Photo 27)

Dipsas monticola Cantor, 1839, *P.Z.S.* p. 53

Pareas *monticola* (Cantor), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 3 ex : 1 ex, Meghalaya, East Khasi Hills, Malki forest, 4.xii.73, Coll. T. Deb & D. Endow; 1 ex, East Khasi Hills, Shillong, Nongthymmai, 3.iii.76, Coll. M.S. Jyrwa; 1 ex, East Khasi Hills, Upper Shillong, from an orchid plant, 7.v.87, Coll. Sandeep and Sanju.

Diagnostic Characters : Diameter of the eye greater than its distance from the mouth; prefrontals in contat with the eye; a subocular in contact with the loreal separate the anterior labials from the eye; 2 post oculars, the lower elongated and extending below the eye; 2 or 3 temporals; 6 or 7 upper labials. Ventrals 177-196; caudals 69-87, paired. Anal 1.

Brown above with transverse blackish bars on the sides; a black bar from above the eye to the nape, and another from behind the eye to the angle of the mouth; top of head more or less thickly spotted with black; yellowish below, dotted with brown.

Total length : 820 mm; tail 160 mm.

Distribution : Khasi Hills, Meghalaya; Assam; Sikkim; West Bengal.

Remarks : Common in the pine forests of Shillong.

Key to the genera of Colubrinae

1. Teeth solid, not grooved 2
   Last two or three maxillary teeth grooved 3
2. Hypapophyses absent on the posterior dorsal vertebrae 4
   Hypapophyses present throughout the vertebral column 5
3. Pupil round ..... ***Chrysopelea***
   Pupil not round 16
4. Maxillary teeth subequal 6
   Maxillary teeth unequal 7
5. Dentary bone attached loosely to the apex of the articular and freely movable on it ..... ***Sibynophis***
   Dentary bone not or but slightly movable on the articular I. 10
6. Scales with apical pits 8
   Scales without apical pits ..... ***Liopettis***
7. Posterior maxillary teeth longest 9
   Some of the anterior maxillary teeth enlarged and fang like ..... ***Lycodon***
8. Scales in 13 rows ..... ***Calamaria***
   Scales in 19 to 27 rows ..... ***Elaphe***
9. 2 or 3 loreals ..... ***Ptyas***
   A single loreal ..... ***Oligodon***
10. Maxillary teeth equal or subequal 11
    Maxillary teeth unequal 12
11. Maxillary teeth equal ..... ***Xenochrophis***
    Maxillary teeth subequal 13
12. Maxillary teeth gradually increasing posteriorly ..... ***Pseudoxenodon***
    Posterior two maxillary teeth abruptly and strongly enlarged, usually preceded by a diastema .. 15

13. A single internasal and prefrontal ..... ***Rhabdops***

    Two internasals and 2 prefrontals 14

14. No loreal or preocular ..... ***Blythia***

    A loreal and a preocular present ..... ***Trachischium***

15. Sulcus spermaticus forked ..... ***Rhabdophis***

    Sulcus spermaticus simple ..... ***Amphiesma***.

16. Pupil horizontal ..... ***Ahaetulla***

    Pupil vertical 17

17. Vertebral row of dorsal scales enlarged ..... ***Boiga***

    Vertebral row of scales not enlarged ..... ***Psammodynastes***

Genus *Liopeltis* Fitzinger

Liopeltis Fitzinger, 1843, *Syst. Rept.* p. 26.

Liopeltis Fitzinger, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Eye large with round pupil; scales smooth in 15 rows.

A single species, *frenatus*, is represented in Meghalaya.

45. *Liopeltis frenatus* (Gunther)

"Striped-neck" Snake

Cyclophis frenatus Gunther, 1858, *Cat. Col. Sn. Brit. Mus.* p. 120.

Liopeltis frenatus (Gunther), Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Nostril lateral, in a long undivided nasal; loreal squarish or a little longer than high; 7 upper labials; 1 preocular; 2 post oculars; 1 loreal; ventrals 140-172; caudals 70-105, paired; Anal 2.

Olive above with longitudinal black or white lines on the the anteior half of the body; a black bar from the post oculars to neck covering temporal scales; labials white.

Total length : 760 mm; tail 235 mm.

Distribution : Khasi Hills, Meghalaya, Assam; Annam; Laos and Myanmar.

Remark : An uncommon snake. I could study only a single specimen from the collections of St.Edmund's College, Shillong, which had 150 ventrals and 93 caudals. Unfortunately, the specimen did not have a collection data.

Genus ***Elaphe*** Fitzinger

Trinket Snakes

Gonyosoma Wagler, 1828, *Icon. Amphib.* pl. ix.

Elaphe Fitzinger, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Scales in 19 to 27 rows, with paired apical pits.

Key to the species of ***Elaphe*** Fitzinger

1. Colour green 2
   Colour not green 3
2. A loreal present ..... *prasina*
   Loreal absent ..... *frenata*
3. Last labial in contact with the temporal ..... *radiata*
   Last labial not in contact with the temporal 4
4. Scales in 19 rows ..... *porphyracea*
   Scales in more than 19 rows 5
5. Scales in 21 rows ..... *cantoris*
   Scales in 23 rows ..... *hodgsoni*

46. ***Elaphe prasina*** (Blyth)

Green Tree Racer

Colour prasinus Blyth, 1854, *J.A.S. Bengal.* xxiii, p. 291.

Elaphe prasina (Blyth), Murthy, 1986,*The Snake Book Of India,* pp.101.

Material examined : 6 ex; 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Kenche's Trace, 3.vi.67, Coll. S. Biswas; 1 ex, East Khasi Hills, Shillong, Kenche's Trace, 15.v.67, Coll. S. Biswas; 1 ex, East Khasi Hills, Shillong, Maidan Laban, 17.iv.65, Coll. K. Khettri; 2 ex, East Khasi hills, Shillong, Laban, 11.ii.80, coll. R. Mathew; 1 ex, West Garo Hills, Selbalgiri, 8.x.88, Coll. J.P. Sati.

Diagnostic Characters : Scales in 19 rows; ventrals 191-209; caudals 91-111, paired; Anal 1; 9 upper labials; preocular 1; post ocular 2; temporals 2 + 2 or 2 + 3. Uniform green, the interstitial skin with black and white reticulations.

Total length : 960 mm; tail 350 mm.

Distribution : Khasi & Garo Hills, Meghalaya; Arunachal Pradesh; Assam; West Bengal. Malay Peninsula; Myanmar; Teng-King; Yunnan.

47. ***Elaphe frenata*** (Gray)

Assam Trinket Snake

Herpetodryas frenatus Gray, 1853. *Ann. Mag. Nat. Hist.* (2) xii, p. 390.

Elaphe frenata (Gray), Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Scales in 19 rows; ventrals 201 235; caudals 120-145, paired ; Anal 2; 8 or 9 upper labials; loreal united with the prefrontal.

Uniform green above with a black streak along the side of the head above the labials (young not green)

Total length : 1500 mm; tail 465mm.

Distribution: Khasi Hills, Meghalaya; Tong-King; China.

Remark : A rare snake. Though originally described from Khasi Hills, there had been no collection of this species ever since from Meghalaya.

48. ***Elaphe radiata*** (Schlegel)

Copperhead

(Col. Photo 22)

Coluber radiatus Schlegel, 1837, *Phys. Serp.* ii, p. 135, pl. v. figs. 5 and 6.

Elaphe radiata (Schlegel), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 4 ex; 1 ex, India, Meghalaya, East Khasi Hills, Umroi, 17.viii.73, Coll. A.K. Ghosh; 1 ex, East Khasi Hills, Barapani, 27.viii.68, Coll. E.D. Nongkhlaw; 1 ex, Jaintia Hills, 3 km. from Sonapurdi on Khliehriat Road, 27.viii.74, Coll. A.R. Lahiri; 1 ex, East Khasi Hills, Barapani, 27.vii.65, Coll. E.D. Nongkhlaw.

Diagnostic Characters:Scales in 21 rows; ventrals 222-250; Caudals 82-108, paired; Anal 1; Preocular 1; Post oculars 2; temporals 2 + 3.

Reddish brown above with four black stripes in the anterior half or two thirds of the body, commencing a short distance behind the neck; the upper pair on either side of the vertebral line broader; the outer pair narrower, usually broken into a series of elongated spots on the anterior part of the body; a black bar across the occiput and three black streaks radiating from below the eye; the young are brighty patterned.

Total length : 1870 mm; tail 400 mm.

Distribution : Khasi, Garo & Jaintia Hills, Meghalaya; Manipur; Eastern Himalayas; Indo-Chinese sub region; Malay; Archipelago.

49. ***Elaphe cantoris*** (Boulenger)

Darjeeling Trinket Snake

(Col. Photo 20)

Coluber cantoris Boulenger, 1894, *Cat. Sn. Brit. Mus.* ii, p. 35.

Elaphe cantoris (Boulenger), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 1 ex, India, Meghalaya, East Khasi Hills, Weiloi, 26.x.78, Coll. S. Biswas.

Dianostic characters : Scales in 19 rows; ventrals 213-236; caudals 65-88 paired, Anal 1; a presubocular usually present; preocular1; post oculars 2; temporals 2 + 2 or 2 + 3.

Grey, the interstitial skin and margins of the scales white, and with large squarish black spots, the verterral series usually united to form broad transverse bars, which are distinct posteriorly, lower parts yellowish, pink on the tail, spotted with grey.

Total length : 1590 mm; tail 330 mm.

Distribution : Khasi Hills, Meghalaya; Arunchal Pradesh; Assam; Sikkim; West Bengal. Myanmar.

50. ***Elaphe porphyracea*** (Cantor)

Black-Striped Trinket Snake

(Col. Photo 21)

Coluber porphyraceus Cantor, 1839, *P. Z. S.* p. 51.

Elaphe porphyracea (Cantor), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 9 ex : 2 ex, India, Meghalaya, East Khasi Hills, Shillong, Risa Colony, Insectary Building compound, 6.x.68, Coll. S.K. Sobhani; 1 ex, East Khasi hills, Shillong, Risa Colonly, 2.xi.73, Coll. R.P. Lushai; 1 ex, East Khasi Hills, Shillong, Risa Colony, June, 75, Coll. Ashish John; 1 ex, East Khasi Hills, Shillong, Risa Colony, 3.vi.77, Coll. A.C. Sukla, 1 ex, East Khasi Hills, Shillong, Bishnupur, Railway Holiday Home, 30.vii.77, Coll. Bishnusingh Thakuri; 1 ex, East Khasi Hills, Shillong, Risa Colonly, 8.x.81, Coll. J.K. Prasad; 1 ex, East Khasi Hills, Shillong, Risa Colony, 26.x.81, Coll. B.K. Bhattacharjee; 1 ex, East Khasi Hills, Shillong, Risa Colony, 26.vii.82, Coll. P.B. Thapa.

Diagnostic Characters : Scales in 19 rows; ventrals 190-218, caudals 52-76 paired, Anal 2; Preocular 1; post ocular 2; temporals 1 + 2.

Reddish brown with broad dark brown, black edged cross bars. In the young they are entirely black; 2 balck dorsolateral lines on the posterior part of the body and tail; a black stripe down the middle of the head and another on each side usually connecting with the first transverse mark on the neck; lower parts uniform yellow.

Total length : 870 mm; tail 148 mm.

Distribution : Khasi Hills, Meghalaya; Assam; Sikkim; West Bengal; China; Malay Peninsula. Myanmar; Siam; Sumatra, Yunnan.

51. ***Elaphe hodgsoni*** (Boulenger)

Himalayan Trinket Snake

Spilotes hodgsonii Gunther, 1860, *P.Z.S.* p. 156.

Elaphe hodgsoni (Boulenger), Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Scales in 23 rows; ventrals 229-247, caudals 79-92, paired; Anal 2;8 upper labials; a pre subocular often united with the 3rd labial.

Olive-brown above, many scales edged with black; yellowish below, outer margins of ventrals edged with black.

Total length : 1500 mm; tail 310 mm.

Distribution : Garo Hills, Meghalaya. the Himalayas.

Remark : Not studied by me.

Genus ***Calamaria*** Boie

Calamaria Boie, 1826, *Isis*, p. 981.

Calamaria Boie, Murthy, 1986, *The Snake Book of India*, pp. 101.

Diagnostic Characters : Head shields reduced, loreals, internasals and temporals absent; parietals in contact with the labials; scales in 13 rows.

A single species, *pavimentata* occur in Meghalaya.

52. ***Calamaria pavimentata*** Dumeril & Bibron

False Wolf Snake

Calamaria pavimentata Dum. & Bibr. 1854, *Erp. Gen.* vii, p. 71.

Calamaria pavimentata Dumeril & Bibron, Murthy, 1986, *The Snake Book of India*, pp. 101.

Diagnostic Characters : Rostral visible from above; 4 upper labials; 1 preocular and 1 post ocular: ventrals 152-196; caudals 10-25, paired; Anal 1.

Total length : 320 mm; tail 15 mm.

Distribution : Garo Hills, Meghalaya. Indo-Chinese region; Southern China; Java; The Malay Peninsula.

Remark : Not studied by me.

Genus ***Lycodon*** Boie

Wolf Snake

Lycodon, Boie, 1826, *in Ferussac's Bull. Sci. Nat.* ix, p. 238.

Lycodon Boie, 1826, Murthy, 1986, *The Snake Booksof India*, pp. 101.

Diagnostic Characters : Scales in 17 rows, 2 post oculars.

Key to the species of ***Lycodon*** Boie.

Purplish above, each scale with two white spots..... *jara*

Fawnish brown above with 12-19 white cross bars which expand laterally..... *aulicus*

53. ***Lycodon jara*** (Shaw)

Yellow striped Wolf Snake

(Col. Photo 23)

Coluber jara Shaw, 1802, *Gen Zool.* iii, p. 525.

Lycodon jara (Shaw), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined: 4 ex; 2 ex, India, Meghalaya, West Garo Hills, Selbalgiri, 15.iv.85, Coll. J.P. Sati; 1 ex, West Garo Hills, Tura Govt. College, Tura; 1 ex, East Khasi Hills, Shillong, 28.viii.68, Coll. S.K. Sobhani.

Diagnostic Characters: Loreal in contact with the internasal, not touching the eye; a preocular; temporals 1 + 2 or 2 + 3; ventrals 167 188; caudals 52-74, paired; Anal 2.

Total length : 385 mm; tail 106 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Assam; Orissa; Tamil Nadu and West Bengal.

54. ***Lycodon aulicus*** (Linnaeus)

Common Wolf Snake

Coluber aulicus, Linnaeus, 1754, *Mus. Adolph. Frider,* i, p. 29.

Lycodon aulicus (Linnaeus), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 2 ex; India Meghalaya, West Garo Hills, Tura Govt. College, Tura.

Diagnostic Characters : Ventrals 172-214; caudals 57-80, paired; Anal 2; preocular 1; Postoculars 2; temporals 2 + 3.

Brown or greyish brown above with from 12 19 white cross-bars enclosing triangular patches; the bars may or may not be speckled with brown.

Total length : 570 mm; tail 90 mm.

Distribution : Garo Hills, Meghalaya; Assam; the whole of India. Celebes; China; Indo-China; Hongkong; Maldives; Malay Peninsula & Achipelago; Myanmar; Nepal; Sri Lanka.

Remark : It is often mistaken for a krait.

Genus ***Ptyas*** Fitzinger

Rat Snakes

Ptyas Fitzinger, 1843, *Syst. Rept.* p. 26.

Ptyas Fitzinger, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Scales in 15 rows; 2 or 3 loreals; a pre sub ocular.

55. ***Ptyas korros*** (Schlegel)

Indo-Chinese Rat Snake

Coluber korros Schlegel, 1837, *Phys. Serp.* ii. p. 139.

Material examined : 4 ex; 1 ex, India, Meghalaya, West Garo Hills, Selbalgiri, 2.v.84, Coll. J.P. Sati, 1 ex, West Garo Hills, Mankachar, 21.iii.92, Coll. J.R.B. Alfred; 1 ex, West Garo Hills, around Siju Cave, 23.x.91, Coll. Y.P. Sinha; 1 ex, West Garo Hills, Tura Govt. College, Tura, August, 92.

Diagnostic Characters : Ventrals 160-187; caudal 120-147, paired; Anal 2.

Greyish-brown above, yellowish below; the scales on the posterior part of the body edged with black. The young ones are olive green with narrow white cross bars.

Total length : 1360 mm; tail 180 mm.

Distribution : Garo Hills, Meghalaya; Assam; China; Hainan; Malaysia; Myanmar.

Genus ***Oligodon*** Boie

Kukri Snakes

Oligodon Boie, 1827, *Isis*, p. 519.

Oligodon Boie, Murthy, 1986, *The Snake Book of India*, pp. 101.

Diagnostic Characters : Head not distinct from neck; eye with round pupil; rostral large, partly separating the internasals, visible from above; 1 pre and 2 post oculars; 3 or 4 lower labials in contact with the anterior genials. A typical pattern on the head with slight modification is observed throughout the genus.

Key to the species of ***Oligodon*** Boie

1. Scales in 15 rows ..... *dorsalis*
   Scales in more than 15 rows 2
2. Scales in 17 rows 3
   Scales in 19 or 21 rows 4
3. Anal shield single ..... *cinereus*
   Anal shield divided ..... *theobaldi*
4. Upper labials 7 ..... *albocinctus*
   Upper labials 8 ..... *cyclurus*

56. ***Oligodon albocinctus*** (Cantor)

White-striped Kukri Snake

(Col. Photo 24)

Coronella albocincta Cantor, 1839, *P.Z.S.* p. 50.

Oligodon albocinctus (Cantor) Murthy, 1986, *The Snake Book of India*, pp. 101.

Material examined : 1 ex, India, Meghalaya, East Khasi Hills, Kyrdem Kulai, 1.xi.83, Coll. R. Zoramthanga.

Diagnostic Characters : Scales in 19 rows; ventrals 177-208; caudals 40-69, paired Anal 1; Upper labials 7; preocular 1; postoculars 2; temporals 1 + 2.

Brown above (reddish or pinkish in life) with white, yellow or fawn coloured black-edged cross-bars (19 to 28 on the body and 4 to 8 on the tail); belly whitish with large black squarish spots at the outer margins of the ventrals; head with typical *Oligodon* pattern.

Total length : 710 mm; tail 170 mm.

Distribution : Khasi Hills, Meghalaya; Assam; Sikkim; West Bengal; Bangladesh; Myanmar.

57. ***Oligodon cyclurus*** (Cantor)

Cantor's Kukri Snake

Coronella cyclura Cantor, 1839, *P.Z.S.* p. 50.

Oligodon cyclurus (Cantor), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 2 ex, India, Meghalaya, West Garo Hills, Tura Govt. College, Tura, August 92.

Diagnostic Characters : Scales in 19 or 21 rows; ventrals 161-195; caudals 36-58 paired; Anal 1; 8 upper labials; a small subocular; 1 preocular; 2 post oculars; temporals 1 + 2.

Fawn or buff coloured above (reddish or pinkish in life) with four longitudinal stripes (2 dorsally and 2 laterally); belly uniform or with a black spot on the outer margins of the ventrals; a vertebral row of small black dots on the anterior region.

Total length : 940 mm; tail 140 mm.

Distribution : West Garo Hills, Meghalaya; Assam; West Bengal. Bangladesh; Cochin China; Indochina; Myanmar; Pulo Condore; Siam; Tenasserim.

58. ***Oligodon dorsalis*** Gray & Hardwicke

Spot tailed Kukri Snake

(Col. Photos 25 and 26)

Elaps dorsalis Gray & Hardwicke, 1834, *Ill Ind. Zool.* ii.

Oligodon dorsalis Gray & Hardwicke, Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 3 ex; 1 ex, India, Meghalaya, Garo Hills, from a stream near Chinabat, 23.viii.83, Coll. A. Hussain; 2 ex, West Garo Hills, Tura Govt. College, Tura, August '92.

Diagnostic Characters : Scales in 15 rows; ventrals 162-188; caudals 27-51 paired; Anal 2; 7 upper labials; 1 anterior temporal.

Brown above with a light vertebral stripe edged with black, another black stripe occupies scale rows 2 and 3 ; lower parts yellowish heavily speckled with black; tail with 2 black spots above, the first on the base, the other near the tip ; below brick red or orange.

Total length : 270 mm; tail 50 mm.

Distribution : Garo Hills, Meghalaya; Nagaland; West Bengal. Myanmar.

59. ***Oligodon theobaldi*** (Gunther)

Burmese Kukri Snake

Simotes theobaldi Gunther, 1868, *Ann. Mag. Nat. Hist.* (4) i, p. 417.

Oligodon theobaldi (Gunther), Murthy, 1986, *The Snake Book of India*, pp. 101.

Diagnostic Characters : Scales in 17 rows; ventrals 164-180; caudals 30-42, paired ; Anal 2; upper labials 8.

Light brown above with narrow closely set tranverse or angular cross bars and with 4 more or less distinct dark brown longitudinal stripes (2 broad vertebral stripes and 2 narrow lateral stripes); yellowish below with or without squarish black spots at the outer margins of the ventrals.

Total length : 390 mm; tail 47 mm.

Distribution : Garo Hills, Meghalaya. Myanmar.

60. ***Oligodon cinereus*** (Gunther)

Black-striped kukri Snake

Simotes cinereus Gunther, 1864, *Rept. Brit. India*, p. 215.

Oligodon cinereus (Gunther) Murthy, 1986, The Snake Book of India, pp. 101.

Material examined : 2 ex; 1 ex, India, Meghalaya, West Garo Hills, Tura Govt. College, Tura, August '92; 1 ex, East Khasi Hills, Shillong, St. Anthony's College, July '90.

Diagnostic Characters : 8 upper labials; scales in 17 rows; ventrals 157-185; caudals 29-42, paired; Anal 1.

Reddish brown above with very distinct black cross-bars alternating with one or two indistinct ones in between. Lower portion heavily marked with squarish spots at the outer margins of the ventrals; head with a chevron mark and two other dark transverse bars anterior to it, a black bar across the snout.

Total length : 500 mm; tail 70 mm.

Distribution : Garo Hills, Meghalaya; Assam; West Bengal. Cambodia; Cochin China; French Indo-China; Hainan; Hongkong; Myanmar; Siam; Tenasserim; Thua Lun; Tong-King.

Genus ***Sibynophis*** Fitzinger

Black - headed Snakes

Sibynophis Fitzinger, 1843, *Syst. Rept.* p. 26.

Sibynophis Fitzinger, Murthy, 1986, *The Snake Book of India*, pp. 101.

Diagnostic Characters : Scales in 17 rows; caudals paried; 1 pre and 2 post oculars; anterior genials larger, in contact with 4 lower labials; 1 pre and 2 post oculars; anal divided.

Key to the species of ***Sibynophis*** Fitzinger

1. 1 anterior temporal ..... *collaris*

   2 anterior temporals ..... *chinensis*

61. *Sioynophis collaris* (Gray)

Collared Black-headed Snake

(Col. Photo 30)

Psammophis collaris Gray, 1853, *Ann. Mag. Nat. Hist.* (2) xii, p. 390.

Sibynophis collaris (Gray) Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 14 ex; 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Lawsohtun, 26.vi.67, Coll. S.D. Sangma; 2 exs, East Khasi Hills, Shillong, Kenche's Trace, 15.v.67, Coll. B.K. Tikader; 1 ex, East Khasi Hills, Shillong, Forest Colony, 22.xii.71, Coll. S.K. Talukdar; 1 ex, Jaintia Hills, Jowai, 4.x.72, Coll. A.R. Lahiri; 1 ex, East Khasi Hills, Shillong, Orchid House, 7.vi.73, Coll. A.S. Rao; 1 ex, East Khasi Hills, Shillong, Risa Colony, 15.v.73, Coll. K. Allia; 1 ex, East Khasi Hills, Shillong, Malki forest, 3.vii.75, Coll. R.S. Giri; 1 ex, East Khasi Hills, Shillong, Motinagar forest, 25.ix.75, Coll. P.B. Thapa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 6.viii.71`, Coll. S.J.S. Hattar; 1 ex, East Khasi Hills, Shillong, Malki forest, 20.ix.76, Coll. M.S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 20.ix.77, Coll. S.J.S. Hattar, 1 ex, East Khasi Hills, Shillong, Risa Colony, 16.vii.77, Coll. P.B. Thapa; 1 ex, East Khasi Hills, Shillong, Laitumkhrah, 16.ix.70, Coll. S.K. Talukdar.

Diagnostic Characters : Ventrals 155-190; caudals 100-125; Anal 2.

Light brown above with a vertebral series of black spots; head with small black spots or vermiculations and 2 black transverse bars, one behind the eyes, the other across the occiput; nape black, bordered with yellow behind; upper lip white or yellow, spotted and bordered above with black. Ventrals with a black spot and an additional median pair of black dots anteriorly. These vary greatly.

Total length : 550 mm; tail 250 mm.

Distribution : Khasi Hills, Meghalaya. The Himalayas; Annam; Laos; Malay Peninsula; Myanmar; Siam; Yunnan.

Remark : Mathew (1983) reports an entire anal shield for one of the specimens studied. Also the median rows of black spots may be seen on a few ventrals or nearly on two thirds of the ventrals. A common species in Shillong and its neighbourhood.

62. *Sibynophis chinensis* (Gunther)

Ablabes chinensis Gunther, 1889, *Ann. Mag. Nat. Hist. (6)* iv, p. 220.

Sibynophis chinensis (Gunther), Smith, 1943, *Fauna of British India,* vol. III, pp. 583.

Material examined : 1 ex, India, Meghalaya, West Garo Hills, Tura, Govt. College, Tura.

Diagnostic Characters : 2 anterior temporals; 9 upper labials; scales in 17 rows; ventrals 168-184; caudals 98-122; Anal 1.

Light brown above, with black spots, anterior ventrals with a black spot.

Distribution : Garo Hills, Meghalaya. Hainnan; South China; Tong-King;

Remark : The only specimen studied is a juvenile. It has 184 ventrals and 99 caudals. The head is completely black with a white collar.

Genus *Xenochrophis* Gunther

Xenochrophis Gunther, 1864, *Rept. Brit. Ind.* p. 273.

Xenochrophis Gunther, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Scales in 19 rows, strongly keeled; subcaudals paired.

Key to the species of *Xenochrophis* Gunther

Head with 2 oblique black streaks, one below and the other behind the eye..... *piscator*

Head without the black streaks ..... *cerasogaster*

63. *Xenochrophis cerasogaster* Cantor

Dark-bellied Marsh Snake

Psammophis cerasogaster Cantor, 1839, *P.Z.S.* p. 52.

Xenochrophis cerasogaster Cantor, Murthy, 1986, *The Snake Book Of India,* pp. 101.

Diagnostic Characters : Scales in 19 rows, the tips distinctly bidentate; ventrals 140-154; caudals 63-76, paired, anal 2; 1 pre and 2 or 3 post oculars; temporals 2 + 2 or 2 + 3; upper labials 9.

Olive brown to green above, with or without more or less distinct darker spots; lower parts reddish, dappled with brown or purplish black, with small whitish spots, particularly on the fore-part of the body; a bright yellow line along the outer margins of the ventrals, bordered above with chocolate, and below, in life, with red; lips yellow, edged with chocolate above, these two colours continuous with those upon the flanks.

Total length : 620 mm; tail 140 mm.

Distribution : Khasi Hills, Meghalaya; Assam; Uttar Pradesh; West Bengal.

Remark : Though Smith (1943) records it from Khasi Hills, no collection of this species could be made by the Eastern Regional Station of Zoological Survey of India, at Shillong ever since its inception in 1959.

64. *Xenochrophis piscator* (Schneider)

Checkered Keelback

(Col. Photo 32)

Hydrus piscator Schneider, 1799, *Hist. Amph.* i.p. 247.

Xenochrophis piscator (Schneider), Murthy, 1986, *The Snake Book of India*, pp. 101.

Material examined : 8 ex, 1 ex, India, Meghalaya, East Khasi Hills, Barapani, 28.viii.61, Coll. C.B. Srivastava; 1 ex, East Khasi Hills, Barapani, 25.i.72, Coll. G.M. Yazdani; 1 ex, West Garo Hills, Rongjeng, 10.iv.73, Coll. S. Biswas; 1 ex, West Garo Hills, Rongdang, 46 km. off Baghmara,

23.ii.71, Coll. G.M. Yazdani; 1 ex, East Khasi Hills, Umran, 9.vii.81, Coll. R. Mathew; 1 ex, East Khasi Hills, Umngi river, 18.iii.83, Coll. Raj Tilak; 1 ex, East Khasi Hills, Shillong, Phnthorumkhrah, 16.xi.86, Coll. K. Deb; 1 ex, West Khasi Hills, 10 km. away from Nongstoin on Syrkon Road, 8.iv.87, Coll. J.R.B. Alfred.

Diagnostic Characters : Scales in 19 rows; ventrals 122-158; caudals 70-97, paired; Anal 2; 1 preocular; 2 or 3 post oculars; temporals 2 + 2 or 2 + 3; 9 upper labials; frontal much constricted in the middle.

Olive gray above with black spots quincuncially arranged; belly whitish, the ventrals edged with black.

Total length : 1200 mm; tail 340 mm.

Distribution : Garo Hills and Khasi Hills, Meghalaya; the whole of India. China; Hainan; Hong-Kong; Laos; Myanmar; Pakistan; Sri Lanka.

Genus ***Rhabdops*** (Theobald)

Grotea Theobald, 1868, *Cat. Rept. As. Soc. Mus.* p. 45.

Rhabdops (Theobald), Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Head not distinct from neck; eye small or moderate, pupil round or vertically subelliptical; nostril crescentic; scales in 17 rows; caudals paired.

65. ***Rhabdops bicolor*** (Blyth)

Black & Yellow Forest Snake

(Col. Photo 28)

Calamaria bicolor Blyth, 1854, *J.A.S. Bengal* xxiii, p. 289.

Rhabdops bicolor (Blyth), Murthy, 1986, *The Snake Book of India*, pp. 101.

Material examined : 3 ex: 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Fruit Garden, 27.x.70, Coll. G.M. Yazdani; 1 ex, East Khasi Hills, Shillong, Risa Colony, 6.v.80, Coll. Edilbert; 1 ex, East Khasi Hillls, Shillong, Tripura Castle Road, 14.viii.76, Coll. P.B. Thapa.

Diagnostic Character : Scales in 17 rows; ventrals 187-226; caudals 63-77, paired; Anal 2; 1 internasal; 1 prefrontal; 1 or 2 pre oculars; 2 or 3 post oculars; temporals 1 + 1; 5 uppr labials.

Light brown above, Yellowish-white below, the two colours strongly contrasted.

Total length : 675 mm; tail 145 mm.

Diatribution : Khasi Hills, Meghalaya. Myanmar. Yunnan.

Genus ***Blythia*** Theobald.

Blythia Theobald, 1868, *Cat. Rept. Asiat. Soc. Mus.* p. 44.

Blythia Theobald, Murthy, 1986, *The Snake Book of India*, pp. 101.

Diagnostic Characters : Scales in 13 rows; sub caudals paired; no loreal or pre ocular.

66. ***Blythia reticulata*** (Blyth)

Irridescent Snake

(Col. Photo 16)

Calamaria reticulata Blyth, 1854, *J.A.S. Bengal*, xxiii, p. 287.

Blythia reticulata (Blyth), Murthy, 1986, *The Snake Book of India*, pp. 101.

Material examined : 3 ex: 1 ex, India, Meghalaya, East Khasi Hills, Upper Shillong, Potato Research Institute, 24.iv.77, donated by PRI; 1 ex, East Khasi Hills, Upper Shillong, 6.ix.85, Coll. P.B. Thapa; 1 ex, East Khasi Hills, Upper Shillong, 9.vii.83, donated by St. Peter's School, Shillong.

Diagnostic Characters : Rostral visible dorsally; 1 anterior temporal; 1 post ocular; 6 upper labials; anterior genials twice as long as the posterior; ventrals 127-155; caudals 26-32, paired; Anal 2.

Olive to darker brown above, highly irridescent; young with a white collar.

Total length : 410 mm; tail 45 mm.

Distribution : Khasi Hills, Meghalaya; Assam; Manipur. Myanmar.

Genus ***Trachischium*** Gunther

Oriental Worm Snakes

Trachischium Gunther, 1858, *Cat. Col. Sn-Brit. Mus.* p. 30.

Diagnostic Characters : Scales in 15 rows; 6 upper labials; 1 pre ocular; 1 anterior temporal; caudals paired.

67. ***Trachischium monticola*** (Cantor)

Assam Oriental Worm Snake

(Col. Photo 31)

Calamaria monticola Cantor, 1839, *P.Z.S.* p. 50.

Trachischium monticola (Cantor), Murthy, 1986, *The Snake Book of India*, pp. 101.

Material examined : 21 ex; 1 ex, India, Meghalaya, East Khasi Hills, Madan Laban, 20.vii.59, Coll. H.S.P. Majumdar; 1 ex, East Khasi Hills, Shillong Kenche's Trace, 20.iv.67. Coll. P.B.Thapa; 1 ex, East Khasi Hills, Motinagar forest, 6.ix.61, Coll. S.N.Prasad; 1 ex, East Khasi Hills,Lalchand Basti, 26.iv.73, Coll. V.D.Srivastava; 1 ex, East Khasi Hills, Shillong, 12.v.73, Coll. A.S. Rao, 1 ex, East Khasi Hills, Shillong, Risa Colony, 2.v.72, Coll. R.S. Giri; 1 ex, East Khasi hills Shillong, Risa Colony, 25.xi.71, Coll. S. K. Talukdar; 3 ex, East Khasi Hills, Shillong,

Pologround, 24.ix.72, Coll. K. Deb; 1 ex, East Khasi Hills, Shillong, Risa Colony, 25.ii.77, Coll. B.K. Bhattacharjee; 1 ex, East Khasi Hills, Shillong, Malki forest, 22.vi.78,Coll. Nongkynrih; 1 ex, East Khasi Hills, Shillong, Oakland Road, 28.vii.77, Coll. P. Sina; 1 ex, East Khasi Hills, Shillong, Motinagar forest, 14.vi.74, Coll. R. Zoramthanga; 1 ex, East Khasi Hills, Shillong, Risa Colony, 8.viii.74, Coll. K. Deb; 1 ex, East Khasi Hills, Shillong,Risa Colony, August 75, Coll. Ashish John; 1 ex, East Khasi Hills, Shillong, Tripura Castle Road, 16.iv.77 Coll. Chandan Singh; 1 ex, East Khasi Hills, Shillong, Risa colony, 23.vi.75, Coll. R. Mathew; 1 ex, East Khasi Hills, Mawphlang, 20.viii.86, Coll. R. Mathew; 1 ex, East Khasi Hills, Shillong Risa Colony, 12.x.88,Coll. K.P. Singh; 1 ex, East Khasi Hills, Shillong, 27.ii.85, Coll. T.T.C. Marak.

Diagnostic Characters : 2 Prefrontals; 2 post oculars; temporals 1 + 1; ventrals 113-130; caudals 26-40; Anal 1.

Light brown with blackish longitudinal lines and two more or less distinct dorso lateral stripes; yellowish below; with or without a yellow spot on either side of the neck.

Total length : 225 mm; tail 30 mm.

Distribution : Khasi Hills, Meghalaya.

Remarks : Very common in and around Shillong and I have seen my hens feeding on this.

Genus ***Pseudoxenodon*** Boulenger

Pseudoxenodon Boulenger, 1890, *F.B.I.* p. 340

Pseudoxenodon Boulenger, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Scales in 19 or 17 rows; caudals paired.

68. ***Pseudoxenodon macrops*** (Blyth)

Tropidonotus macrops Blyth, 1854, *J.A.S. Bengal,* xxiii, p. 296,

Pseudoxenodon macrops Blyth, Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 2 ex: 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Risa Colony, (no other data); 1 ex, East Khasi Hills, Upper Shillong, April 77, Donated by Potato Research Institute, Upper Shillong.

Diagnostic Characters : Ventrals 151-180; caudals 55-80; Anal 2; 1 preocular, 3 post oculars; temporals 2 + 2; 8 upper labials.

Olivaceous, brownish or greyish above, with or without a vertebral series of yellowish, reddish-brown or orange dark-edged spots or short cross-bars and a dorsolateral series of black-spots; a chevron shaped mark on the nape may be present; belly anteriorly with large quadrangular black or dark brown spots.

Total length : 1160 mm; tail 230 mm.

Distribution : Khasi Hills, Meghalaya; Assam; West Bengal. Annam; Malay Peninsula; Myanmar; Nepal; Siam.

Genus ***Rhabdophis*** Fitzinger

Rhabdophis Fitzinger, 1843, *Syst. Rept.* p. 27.

Rhabdophis Fitzinger, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Internasals broad anteriorly; nostrils lateral; scales in 19 rows; caudals paired.

Key to the species of ***Rhabdophis*** Fitzinger

1. A dorso-lateral series of yellow spots on the body; a white or yellow collar.....*himalayana*

   Dorso-lateral series of yellow spots absent on the body; neck red; collar absent.....*subminiata*

69. ***Rhabdophis himalayana*** (Gunther)

Himalayan Keelback

(Col. Photo 29)

Trpidonotus subminiatus Schlegel, 1837, *Phys. Serp.* ii, p. 313.

Rhabdophis himalayana (Gunther), Murthy, 1986, *The Snake Book of India,*pp. 101.

Material examined : 17 ex; 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Risa Colony, 28.viii.68, Coll. S.K. Sobhani; 1 ex, East Khasi Hills, Shillong, Risa Colony, 30.iv.73, Coll. J.K. Prasad; 1 ex, East Khasi Hills, Shillong, Risa Colony, 17.ix.75, Coll Ashish John; 1 ex, East Khasi Hills, Shillong, Risa Cololy, 26.vi.75, Coll. K. Deb; 1 ex, East Khasi Hills, Shillong, Tripura Castle Road, 24.vi.76, Coll. P.B. Thapa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 26.ix.77, Coll. B.K. Bhattacharjee; 1 ex, East Khasi Hills, Shillong, Risa Colony,22.ix.75, Coll. Chandan Singh; 1 ex, East Khasi Hills, Shillong, Risa Colony, 5.vii.77, Coll. B.K. Bhattcharjee; 1 ex, East Khasi Hills, Shillong, Motinagar forest, 28.vi.74, Coll. R.S. Giri; 1 ex, East Khasi Hills, Shillong, Risa Colony, 17.viii.77, Coll. P.B. Thapa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 1.ix.76, Coll. J.K. Prasad; 1 ex, East Khsai Hills, Shillong, Tripura Castle Road, 3.xii.74, Coll. M.S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Tripura Castle Road, 12.vii.76, Coll. P.B.Thapa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 8.vii.75, Coll. S.J.S. Hattar; 1 ex, East Khasi Hills, Shillong, Motinagar forest, 2.viii.75, Coll. R. Zoramthanga; m1 ex, East Khasi Hills, Shillong, Risa Colony, 26.vi.75, Coll. K. Deb; 1 ex, Jainta Hills, Sonapur river, 28.iii.81, Coll. R. Zoramthanga; 1 ex, East Khasi Hills, 5 km from la-ilad via Tasku village, 22.iv.88, Coll. K. Karmakar.

Diagnostic Characters : Scales in 19 rows; ventrals 151-176; caudals 79-95; upper labials 8 or 9, 4th and 5th or 5th and 6th in contact with the eye; 1 pre ocular; 3 post oculars; temporals 2 + 2 or 2 + 3.

Olive above with small black spots and two dorso-lateral series of small yellow spots; lower parts yellowish, uniform or speckled with brown; a yellow or orange collar; labials bordered with black; 2 black cross bars, one below and the other behind the eye.

Total length : 850 mm; tail 200 mm.

Distribution : Khasi Hills and Jaintia Hills, Meghalaya; Manipur; Nagaland. Eastern Himalayas; Myanmar.

Remark : Two forms of this species are seen. In the most common form found in Shillong, the collar is broad and is followd by two or three angular white or yellow bars. In the second from the collar is narrow and is not followed by any bars. Two labials bordering the eye is often observed. However, this can not be taken as a dependable key character.

The shape of the head also vary. Some have an oval sleek head and the other a broader and shorter one. Common in Meghalaya.

70. ***Rhabdophis subminiata*** (Schlegal)

Red-necked Keelback

Tropidonotus subminiatus Schlegel, 1837, *Phys, Serp,* ii, p. 313.

Rhabdophis subminiata (Schlegal), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 8 ex: 1 ex, India, Meghalaya, West Garo Hills, 13 km from Tura on Tura - Phulbari Road, 25.ii.65, Coll. A.S. Rajagopal; 1 ex, East Khasi hills, Shillong, Laitumkhrah, Banasree, 16.ix.70, Coll. S.K. Talukdar; 1 ex, East Khasi Hills, Shillong, Risa Colony, 20.vii.73, Coll. R.P. Lushai; 1 ex, Jaintia Hills, Lundong Dam site, Jowai-Garampani Road, 10.ix.83, Coll. A. Hussain; 1 ex, West Garo Hills, Selbalgiri, 20.x.85, Coll. J.R.B. Alfred; 3 ex, West Garo Hills, Tura Govt. College, Tura, August '92.

Diagnostic Characters : Scales in 19 rows; ventrals 163-190; caudals 88-100, paired; Anal 2; 8 upper labials, usually 3rd to 5th border the eye; 1 pre ocular; 3 post oculars; temporals 2 + 3.

Total length : 870 mm; tail 240 mm.

Distribution : Khasi, Garo and Jaintia Hills, Meghalaya; Assam; Manipur; Mizoram; Nagaland; Sikkim; Tripura. Eastern Himalayas; Indo-Chinese region; China; Hainan; Hong-Kong; Malay Peninsula and Archipelago.

Remark : This species has a wider distribution compared to the precedisng species. Both species have strongly keeled scales.

Genus ***Amphiesma*** Dumeril and Bibron, 1854.

Keelbacks

Amphiesma Dumeril and Bibron, 1854, *Erp. Gen.* vii, p. 724.

Diagnostic Characters : Internasals broad anteriorly; nostril lateral; scales in 19 rows.

Key to the species of ***Amphiesma*** Dumeril & Bibron.

1. Posterior maxillary teeth gradually englarged 2

   Posterior maxillary teeth abruptly enlarged 3

2. Subcaudals single ..... *xenura*

Subcaudals paired or some of them single 4

3. Internasals much narrowed anteriorly; 2 light stripes down the back ..... *stolata*

   Internasals not markedly narrowed anteriorly; no dorsal stripes ..... *platyceps*

4. 8 upper labials ..... *parallela*

   9 upper labials 5

5. Labials black with light centres ..... *khasiensis*

   Labials whitish, the margin edged with black or entirely black or brown ..... *modesta.*

71. *Amphiesma parallela* (Boulenger)

Boulenger's Keelback

Tropidonotus parallelus Boulenger, 1890, *F.B.I.* p. 345.

Amphiesma parallela (Boulenger), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 10 ex : 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Fruit Garden, 9.iii.61, Coll. S.N. Prasad; 1 ex, East Khasi Hills, Shillong, Risa Colony, 16.viii.78, Coll. P.B.Thapa; 1 ex, East Khasi Hills,Shillong, Risa Colony, 18.viii.77, Coll. M.S.Jyrwa; 1 ex, East Khasi hills, Shillong, Risa Colony, 5.vi.81, Coll. Chandan Singh; 1 ex, West Khasi Hills, Khabri Malai, 17.xii.81, Coll. M.R. Rynth; 2 ex, West Garo Hills, Selbalgiri, 17.iv.85, Coll. J.P. Sati; 1 ex, East Khasi Hills, Mawphlang, 20.viii.86, Coll. R. Mathew; 1 ex, East Khasi Hills, Shillong, Tripura Castle Road, 11.x.88, Coll. Khrawkupar Syiem; 1 ex, West Garo Hills, Selbalgiri, 10.x.88, Coll. J.P.Sati.

Diagnostic Characters : Internasals truncate; nostrial lateral; temporals 1 + 1 or 1 + 2; scales in 19 rows; ventrals 163-172; caudals 73-108, paired; Anal 2.

Greyish brown above, the scales black edged and with 2 dorso lateral black edged stripes; a black streak from the eye to the angle of the mouth; labials yellow, uniform or black edged; ventrals and caudals yellow with or without a black dot on each side.

Total length : 635 mm; tail 144 mm.

Distribution Khasi and Garo Hills, Meghalaya; Nagaland; Sikkim; West Bengal. Myanmar; Tong-King; Yunnan.

72. *Amphiesma khasiensis* (Boulenger)

Khasi Keelback

Tropidonotus khasiensis (Boulenger), 1890, *F.B.I.* p. 344.

Amphiesma khasiensis (Boulenger), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 1 ex, India, Meghalaya, East Khasi Hills, Botanical garden, Barapani, 4.v.67, Coll. S.K. Kataki.

Diagnostic Characters : Internasals truncate anteriorly; 1 or 2 post oculars; temporals 1 + 1 or 1 + 2; 9 upper labials; scales in 19 rows; ventrals 145-155; caudals 94-110, paired Anal 2.

Greyish above witrh a series of dorso-lateral spots; ventrals and caudals yellowish, the outer margins with a spot; parietals usually with 2 small white spots; labials whitish, bordered with black.

Total length : 600 mm; tail 195 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Assam; Mizoram; West Bengal. Myanmar; Tong-King.

Remark : Smith(1943) reports that this species is common in the Khasi and Kachin Hills. Considering the fact that there exists a single specimen at Eastern Regional Station, Zoological Survey of India, Shillong as a result of the many intensive surveys conducted especially in Khasi Hills of Meghalaya by the station, it is assumed that this species though once plenty, is rare in Meghalaya.

73. ***Amphiesma modesta*** (Gunther)

Gunther's Keelback

Tropidonotus modestus Gunther, 1875, *P.Z.S.* p. 232.

Amphiesma modesta (Gunther), Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Internasals truncate anteriorly; 2 pre oculars; temporals 1 + 1 or 1 + 2; 9 upper labials; scales in 19 rows; ventrals 148-168; caudals 83-132; Anal 2.

Brown above with small black spots regularly arranged and a dorsolateral series of small yellow spots, lower parts yellowish, powdered with black; a yellow stripe on each side of the head starting from behind the eye and converging towards its fellow on the neck, labials edged with black.

Total length : 600 mm; tail 185 mm.

Distribution : Khasi Hills, Meghalaya. Myanmar; North Siam; Combodia; Laos.

Remark : A rare species, not observed by me.

74. ***Amphiesma stolata*** (Linnaeus)

Striped Keelback

(Col. Photo 15)

Coluber stolatus Linnaeus, 1758, *Syst. Nat. 10th Ed.* p. 219.

Amphiesma stolata (Linnaeus), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 6 ex: 1 ex, India, Meghalaya; East Khasi Hills, Cherapunjee, 29.vi.59, Coll. S.N. Prasad; 1 ex, East Khasi Hills, Shillong, Sericulture garden, 6.vii.62, Coll. S.N. Prasad; 1 ex, East Khasi Hills, Shillong, Stream near Fruit Garden, 19.iv.72, Coll. S.J.S. Hattar; 1 ex, East Khasi Hills, Barapani, 6.x.75, Coll. Ashish John; 1 ex, East Khasi hills, Umroi, 13.ix.77, Coll. S.K. Chanda; 1 ex, West Khasi Hills, Nongstoin, 12.xii.80, Coll. C. Radhakrishnan.

Diagnostic Characters : Nostril placed dorso-laterally; internasals much narrowed anteriorly; frontal constricted in the middle; 1 pre oculars; temporals 1 + 1 or 1 + 2; 8 upper labials; scales in 19 rows; ventrals 118-158; caudals 50-89, paired; Anal 2.

Brownish above with black spots and 2 dorso-lateral buff stripes, the stripes best marked on the posterior part of the body where the black spots are least evident; lower parts with or without a spot on the ventral shield; labials yellowish, may or may not be black edged.

Total length : 505 mm; 145 mm.

Distribution : Khasi Hills, Meghalaya; the whole of India. China; Hainan; Indo-China; Pakistan; Sri Lanka.

75. ***Amphiesma platyceps*** (Blyth)

Mountain Keelback

Tropidonotus platyceps Blyth, 1854, *J. A. S. Bengal,* xxiii, p. 297.

Amphiesma platyceps (Blyth), Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Nostril lateral; 1 pre ocular; temporals 1 + 1 or 2 + 2; 8 upper labials; scales in 19 rows; ventrals 174-217; caudals 86-107, paired; Anal 1.

Olive-brown above, with small black spots, rarely a dorso-lateral series of white spots; frequently two white black-edged parallel lines or an elliptic mark, on the nape, or a white black-edged streak on each side of the head, a black line from eye to gape; lips white or yellow, belly yellowish, with or without black dots, bordered outside with bright red in life; frequently a black line or series of elongate blackish spots along each side of the belly; lower surface of tail frequently mottled with blackish; throat sometimes black.

Total length : 880 mm; tail 225 mm.

Distribution : Khasi Hills, Meghalaya; Assam; West Bengal; the Himalayas.

Remark : A rare snake, not seen or studied by me.

76. ***Amphiesma xenura*** (Wall)

Cherrapunji Keelback

Tropidonotus xenura Wall, 1907, *J. Bombay, N. H.S.* xvii, p. 616.

Amphiesma xenura (Wall), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 2 ex, India; Meghalaya, West Garo Hills, Tura Govt. College, Tura, August '92.

Diagnostic Characters : 1 pre ocular; 2 post oculars; 9 upper labials; 2 + 3 temporals; 1 loreal; 2 nasals; scales in 19 rows; ventrals 158-165; caudals 82-105, single; Anal 2.

Dark olive-brown above with indistinct narrow black cross-bars or series of spots; whitish below with dark brown squarish spots at the outer margins of the ventrals; tail more thickly spotted; labials black edged; a white streak from behind the angles of the mouth on to the neck.

Total length : 660 mm; tail 190 mm.

Distribution : Khasi and Grao Hills, Meghalaya.

Remarks : A rare species. The only material studied by me are two juveniles in the collection of Tura Govt. College Tura. It is a smooth brownish black snake with white patch on the parietals. Ventrals each with a black spot.

Genus ***Chrysopelea*** Boie

Chrysopelea Boie, 1826, in *Feruss, Bull. Sci.* Nat. ix, p. 237.

Diagnostic Characters : Scales in 17 rows, with apical pits; ventrals with a suture like lateral keel and a notch on each side corresponding to the keel; caudals paired.

77. ***Chrysopelea ornata*** (Shaw)

Golden Tree Snake

(Col. Photo 19)

Coluber ornatus Shaw, 1802, *Gen Zool.* iii, p. 477.

Chrysopelea ornata (Shaw), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 3 ex: 1 ex, India, Meghalaya, Jaintia Hills, Dawki, 10.vi.81, Coll. C. Radhakrishnan; 2 ex, West Garo Hills, Tura, Tura Govt. College, August '92.

Diagnostic Characters : Frontal bell shaped; loreal elongate; 1 large pre ocular; 2 post oculars; temporals 2 + 2; upper labials 9; ventrals 213-234 (216); caudal 110-138 (124), paired; Anal 2.

Greenish yellow above, each scale edged and mesially streaked with black, with more or less distinct black cross bars and a series of large coral red spots on every alternate yellow bands; ventrals yellow with a small black spot on either side.

Total length : 104 1100 mm; tail 275 300 mm.

Distribution : Khasi, Garo and Jaintia Hills, Meghalaya; Bihar; Orissa; West Bengal; Western Ghats. Southern China; The whole of Indo-Chinese region; Myanmar; Sri Lanka; Tong-King.

Remarks : Smith (1943) reports the occurrence of two distinct varieties of this species; the first variety with the flower-shaped vertebral spots distributed within Sri Lanka and Western Ghats and a second variety without the vertebral spots distributed over the whole of Indo-Chinese region; Bihar; Orissa; West Bengal, Southern China and Myanmar. In the present study, the material from Dawki was collected while at rest on a rock which supports the observations made by the earlier workers that this species "frequents the ground" The collector's note says that it was visibly arrogant and tried to strike at the camera. A Gekkonid lizard was found inside the stomach.

Genus ***Ahaetulla*** Meise & Henning

Vine Snakes

Ahaetulla, Meise & Hennig, *Zool. Anz. Leipzig,* xcix, 11/12, 1932, p. 296.

Ahaetulla Meise & Henning, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic characters : Head elongate; eye large, transversely oval with horizontal pupil; nostril in the posterior part of an elongated nasal; frontal narrow, elongate, bell-shaped; scales in 15 rows, the vertebral row slightly enlarged.

78. ***Ahaetulla prasina*** (Boie)

Dryophis prasinus Boie, 1827, *Isis,* p, 545.

Dryophis prasinus (Boie), Smith, 1943, *Fauna of British India,* pp. 583.

Material examined : 2 ex : 1 ex, India, Meghalaya, West Kashi Hills, 23 km away from Nongstoin on Syrkon Road, 8.iv.87, Coll. J. R. B. Alfred; 1 ex, West Garo Hills, Tura Govt. college, Tura.

Diagnostic Characters : Snout without a dermal appendage; nasals in contact with the labials; prefrontals separated from them by 2 or 3 loreals; 1 preocular in contact with the frontal; 2 post oculars; temporal, 2 + 2 or 2 + 3; 9 upper labials; anterior genials much shorter than the posterior; the scales of the sacral region strongly keeled in males often froming tubercles, ventral 194-235; caudals 151-187, paired; Anal 2.

Green above, the interstitial kin black and white forming oblique lines; a white or yellow line along the outer margin of the ventrals.

Total length : 1970 mm; tail 670 mm.

Distribution : Khasi Hills, Meghalaya; West Bengal; the Eastern Hmalayas, the whole of Indo-Chinese region; Indo-Australian Archipelago.

Remarks : The material from Syrkon was collected while in the process of swallwing a *Calotes* sp.

Genus ***Boiga*** Fitzinger

Cat Snakes

Boiga Fitzinger, 1826, *Neue Class. Rept.* p. 29.

Boiga Fitzinger, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Head very distinct from neck; eye large with vertical pupil; scales in 19 to 29 rows, the vertebral row enlarged.

Key to the species of ***Boiga*** Fitzinger

1. Pre ocular reaching the opper surface of the head..... *cyanea*

   Pre ocular not reaching the upper surface of the head ..... *trigonata*

79. ***Boiga cyanea*** Dumeril & Bibron

Green Cat Snake

(Col. Photo 17.)

Triglyphodon cyaneum Dumeril & Bibron, 1854, *Erp. Gen.* vii, p. 1079.

Boiga cyanea Dumeril & Birbon, Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 1 ex, India, Meghalaya, East Khasi Hills, Kyrdem Kulai, 23.vi.84, Donated by St. Peter's school, Shillong.

Diagnostic Characters : 1 pre ocular reaching the upper surface of the head; temporals 2 + 3; scales in 21 rows, vertebral row enlarged; ventrals 237-257; caudals 124-138.

Green above, belly uniform or spotted with dark green; interstitial skin black; chin and throat blue in life; very young ones are light brown or reddish or pinkish with or without markings.

Total length : 1860 mm; tail 440.

Distribution : Khasi hills, Meghalaya; Assam Tripura. Cambodia; Coachin-China; Myanmar; Pulo Condore; Siam.

80. ***Boiga trigonota*** (Schneider)

Indian Gamma

(Col. Photo 18)

Coluber trigonatus (Schneider), 1802, *in Bechst. transl. Lacep,* iv, p.256,

Boiga trigonata (Schneider), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 4 ex: 1 ex, India, Meghalaya, West Garo Hills, Anogiri, 8.iii.75, Coll. S. Biswas; 3 ex, West Garo Hills, Tura Govt. College, Tura.

Diagnostic Characters : 1 pre ocular not reaching the upper surface of the head; temporals 2 + 3; posterior genials separated from one another by small scales, scales in 21, vertebrals feebly enlarged; ventrals 206-256; caudals 75-105, paired. Anal : 1.

Light yellowish-brown above, with a vertebral series of large,light, black edged, angular or y shaped spots; belly uniform or with small black spots on the outer margins of the ventrals; head with light symmetrical markings; a light stripe from above the eye to the angle of the jaw.

Total length: 990 mm; tail 180 mm.

Distribution : Garo Hills, Meghalaya. Throughout India; Pakistan; Sri Lanka.

Diagnostic Characters : 2 anterior maxillary teeth enlarged and two posterior most maxillary teeth enlarged and grooved; eye with vertically elliptic pupil; Scales in 17 rows; caudals paired.

Genus ***Psammodynastes*** Gunther

Psammodynastes Gunther, 1858, *Cat. Col. Sn. Brt. Mus,* p. 140

Psammodynastes Gunther, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : 2 anterior maxillary teeth enlarged and two posterior most maxillary teeth enlarged and grooved; eye with vertically elliptic pupil; Scales in 17 rows; caudals paired.

81. ***Psammodynastes pulverulentus*** (Boie)

Mock Viper

Psammophis pulverulenta Boie, 1827, *Isis*, p. 547.

Psammodynastes pulverulentus (Boie), Murthy, 1986, *The Snake Book of India*, pp. 101.

Material examined : 7 exs : 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Motinagar forest, 7.ii.61, Coll. S. N. Prasad; 1 ex, East Khasi Hills, Shillong, Tripura Castle Road, 16.xi.76, Coll. P. B. Thapa; 1 ex, East Khasi Hills, along Old Barapani Road, 17.viii,73, Coll. A. K. Ghosh; 1 ex, East Khasi Hills, Lawsohtun, 16.viii.71, Coll. S. D. Sangma; 1 ex, East Khasi Hills, Shillong, Motinagar forest, 19.i.77, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong, 17.iv.84, Coll. J.R.B. Alfred; 1 ex, East Khasi Hills. Shillong, B.S.I. compound, 13.v.85, Coll. Joseph Mani.

Diagnostic Characters : Snout truncate and slightly turned up; frontal narrow and elongated, more or less bell-shaped; loreal may or may not be transversely divided; 1 or 2 pre oculars; 2 or 4 post oculars; temporal 2 + 3; 8 upper labials; 3 pairs of genials, the anterior most pair broadest; ventrals 146-175; caudals 44-71, paired; Anal 1.

Light brown above with small black streaks; a series of yellow spots on either side of the vertebral line; lowerr parts mottled with brown; head with symmetrical markings.

Total length : 435-510mm; tail 90-170 mm.

Distribution : Khasi Hills, Meghalaya; Arunachal Pradesh; West Bengal. The whole of Indo-Chinese region; China; Hainan; Malay Archipelago; Nepal.

Remarks : Common in Shillong and its neighbourhood especially in the forests of Malki and Motinagar. A pair was caught and released from my house compound at Risa Colony on 6.x.92 which made no attempt to strike or show any viciousness.

Sub family Xenoderminae

Genus ***Stoliczkaia*** Jerdon

Stoliczkaia Jerdon, 1870, *Proc. Asiat. Soc. Bengal.*

Stoliczkaia Jerdon, Murthy, 1986, *The Snake Book of India*, pp. 101.

Diagnostic Characters : Head with large shields; posterior one-third of head and temporal region covered by small scales; dorsals in 29-31 rows, small, juxtaposed or separated from one another by naked skin; caudals single.

A single species

82. ***Stoliczkaia khasiensis*** Jerdon

Stoliczkaia khasiensis Jerdon, 1890, *P. A. S. Bengal*, p. 81.

Stoliczkaia khasiensis Jerdon, Murthy, 1986, *The Snake Book of India*, pp. 101.

Diagnostic Characters : Frontal broader than long, partially or completely divided by a longitudinal suture; 1 large preocular and 2 post oculars; 8 upper labials; ventrals 208-210; caudals 115-116; Anal 1.

Purplish brown above; ventrals and three outer scale rows white with brown bases.

Total length : 670 mm; tail 190 mm.

Distribution : Khasi Hills, Meghalaya; Assam.

Remarks : I have not seen any material of this species. According to Murthy et al (in press) who condider this a rare species, there is a single specimen in the holdings of Zoological Survey of India, Calcutta.

Family 13 ELAPIDAE

Key to the genera of Elapidae

1. Vertebral series of dorsals enlarged ..... ***Bungarus***
   Vertebral series of dorsals not enlarged 2
2. Scales in 13 rows ..... ***Callophis***
   Scales in more than 13 rows 3
3. Scales in 15 rows; a pair of large occipital shields ..... ***Ophiophagus***
   Scales in 19-25 rows; no occipital shields ..... ***Naja***

Genus ***Bungarus*** Daudin

Kraits

Bungarus Daudin, 1803, *Mag. Encycl., An. 8, v, March*, p. 434.

Bungarus Daudin, Murthy, 1986, *The Snake Book of India*, pp. 101.

Diagnostic Characters : No loreal; eye with round pupil, vertebral row of dorsals enlarged; caudals single or some of them paired.

Key to the species of ***Bungarus*** Daudin

1. Terminal caudal scutes in pairs ..... ***bungaroides***
   Caudals single throughout 2
2. Tail ending in a point ..... ***niger***
   Tail ending bluntly ..... ***fasciatus***

83. ***Bungarus bungaroides*** (Cantor)

Himalayan Krait

(Col. Photo 33)

Elaps bungaroides Cantor, 1839, *P.Z.S.* p. 33

Bungarus bungaroides (Cantor), Murthy, 1986, *The Snake Book of India*, pp. 101.

Material examined : 3 ex,; 1 ex, India, Meghalaya, West Garo Hills, Selbalgiri, 29.x.86, Coll. J. P. Sati; 2 ex, Garo Hills, Forest Department Balphakram, 16.v.88.

Diagnostic Characters : 1 preocular in contact with the posterior nasal; 2 post oculars; temporals 1 + 2 or 2 + 2; upper labials 7; scales in 15 rows; ventrals 220-252; caudals 44-86, paired, few of the anterior caudals single; Anal 1.

Black with yellowish transverse bars, forming broad bands across the belly; a white line across the snout, and a curved one on each side from the frontal shield to behind the angle of the mouth and a third from the post oculars to the lip.

Total length : 1400 mm; tail 160 mm.

Distribution : Garo and Khasi Hills, Meghalaya; Assam. Eastern Himalayas; Myanmar.

Remarks : One of the specimens had 48 transverse bars in all.

84. ***Bungarus niger*** Wall

Black Krait

Bungarus niger Wall, 1908, *J. Bombay N. H. S.* xviii, p. 715.

Bungarus niger Wall, Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 2 ex; India, Meghalaya, West Garo Hills, Balphakram; Forest department, 16.v.88.

Diagnostic Characters : Scales in 15 rows; ventrals 216-235; caudals 49-56, single; anal 1; 1 pre ocular; 2 post oculars; temporals 1 + 2;

Uniform bluish-black or black above, white below, with a more or less distinct dark mottling at the base of the ventrals and subcaudal shields.

Total length : 1200 mm; tail 135 mm.

Distribution : Garo Hills, Meghalaya; Assam. Eastern Himalayas.

85. ***Bungrus fasciatus*** (Schneider)

Banded Krait

(Col. Photo 34)

Pseudoboa fasciata Schneider, 1801, *Hist. amph. ii*, p. 234.

Bungarus fasciatus (Schneider), Murthy, 1986, *The Snake Book of India*, pp. 101.

Material examined : 1 ex, India, Meghalaya, West Garo Hills, around Sijucave, 23.xi.90, Coll. Y. P. Sinha.

Diagnostic Characters : Scales in 15 rows; ventrals 200-234; caudals 23-39; Anal 1.

alternately banded with black and buff bands; a prominent ridge down. The back; a large black mark on the nape.

Total length : 1800 mm ; tail 150 mm.

Distribution : Garo Hills, Meghalaya; Andhra Pradesh; Assam; Bihar; Orissa; Uttar Pradesh; West Bengal; the whole of Indo-Chinese region; China; Malay Peninsula and Archipelago; Myanmar.

Genus ***Callophis*** Gray

Coral snakes

Callophis Gray, 1834, *Ill. Ind. Zool.* ii.

Callophis Gray, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : No loreal; scales in 13 or 15 rows; caudals paired or single.

86. ***Callophis macclellandi*** (Reinhardt)

Macclelland's Coral Snake

(Col. Photo 35)

Elaps macclelandi Reinhardt, 1844, *Calcutta J. Nat. Hist. iv,* p. 532.

Callophis macclellandi (Reinhardt), Murthy, 1986, *The Snake Book of India,* pp., 101.

Material examined : 10 ex : 1 ex, India, Meghalaya, East Khasi Hills, Shillong. 24.iv.69, Coll. G. T. Allen; 1 ex, East Khasi Hills, Shillong, Risa Colony, 22.viii.72, Coll. D. Thapa; 1 ex, East Khasi Hills, Shillong, Risa Colony, Fruit Garden, 21.ix.72, Coll. K. Deb; 1 ex, East Khasi Hills, Shillong, Risa Colony, 27.vi.77, Coll. B. K. Bhattacharjee; 1 ex, East Khasi Hills, Shillong, Motinagar forest, 18.viii.81, Coll. M. S. Jyrwa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 18.viii.77, Coll. B. S. Ria; 1 ex, West Garo Hills, Selbalgiri, 10.x.88, Coll. J. P. Sati; 1 ex, West Garo Hills, Tura, Tura Govt. College; 1 ex, East Khasi Hills, Shillong, Risa Colony, 21.xi.92, Coll. D. R. Parots.

Diagnostic Characters : Scales in 13 rows, smooth; ventrals 182-244; caudals 25-36, paired; Anal 2;1 pre ocular in contact with the posterior nasal; 2 post oculars; temporals 1 + 1; 7 upper labials.

Reddish above with regular narrow, black transverse bars which may or may not reach the ventrals; head black except for the broad, white, transverse bar; yellow beneath with large black spots or cross bars.

Total length : 780 mm; tail 70 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Assam; West Bengal; Eastern Himalayas; Annam; China; Formosa; Hainan; Tong-King; Myanmar.

Remarks : Fairly common in and around Shillong.

Genus ***Ophiophagus*** Gunther

Ophiophagus Gunther, 1864, *Rept. Brit. Ind.* p. 341.

Ophiophagus Gunther, Murthy 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : A pair of large oceipital shields; scales in 15 rows at mid body; ventrals 240-254; caudals 84-104, anterior ones single; Anal 1 ; 1 pre ocular; 3 post oculars; temporals 2 + 2.

87. ***Ophiophagus hannah*** (Cantor)

King cobra

Hamadryas hannah Cantor, 1836, *Asist. Research, xix,* p. 187.

Ophiophagus hannah (Cantor), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 2 ex ; 1 ex, India, Meghalaya, East Khasi Hills, Umtham, 29.x.64, Coll. A. K. Mondal; 1 ex, East Khasi Hills, Shillong, Woodland compound, 15.vii.60, donated by Botanical Survey of India, Shillong.

Diagnostic Characters : Brown above with narrow, white, buff or yellow angularly transverse bars; in the young, these bars including the 4 bars on the head are very distinct.

Total length : 2400 mm; tail 495 mm.

Distribution : Khasi Hills, Meghalaya; Andaman Islands; Assam; Bihar; Orissa; West Bengal; the Himalayas; Western Ghats. The whole of Indo-Chinese region; China; Malay Peninsula and Archipelago; Myanmar; Philippine Islands; Siam and French Indo-China.

Remarks : King cobras, the largest venomous snakes in the world, may attain 5 meters in length in India

Genus ***Naja*** Laurenti

Cobras

Naja Laurenti, 1768, *Syn. Rept.* p. 90

Naja Laurenti, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic characters : Dilatable neck; eye moderate with round pupil; no loreal; scales in 13 25 rows; caudals paired.

88. ***Naja naja*** (Linnaeus)

Indian Cobra

(Col. Photo 36)

Coluber naja Linnaeus, 1758, *Syst. Nat.* 10th ed. p. 221.

Naja naja (Linnaeus), Mathew, 1991, *J. Bombay nat. Hist. Soc.* **88**(2) pp. 292-293.

Material examined : 5 ex : 1 ex, India, Megthalaya, East Khasi Hills, Diengpasohu, 26.iv.68, Coll. V. D. Srivastava; 1 ex, East Khasi Hills, Diengpasohu, 27.iv.63, Coll. M. R. Lyngdoh; 1 ex, East Khasi Hills, Umroi, 30.iv.68 Coll. R. K. Varshney; 1 ex, West Garo Hills, Tura Govt. College, Tura; 1 ex, East Khasi Hills, Shillong, St. Edmund's College.

Diagnostic Characters : I pre ocular; 3 post oculars; 7 opper labials; temporals 2 + 3; a cumeate scale in between the 4th lower labials; scales in 21 rows; neck dilatable, hood monocellate; ventrals 164-196; caudals 43-5f8; Anal 1.

Olivaceous or brownish to black above, with a yellow or orange-coloured, O-shaped or monocellate mark on the hood; a black spot on the lower surface of the hood on either side, and one or two broad black cross-bars on the belly behind it.

Total length : 1500mm; tail 230mm.

Distribution : Khasi and Garo Hills, Meghalaya; Andamans; Assam; Orissa; West Bengal.

Remarks : Variations in scale characters in this species were observed by Mathew (1991).

Family 14 VIPERIDAE

Genus *Trimeresurus* Lacepede

Pit Vipers

Trimeresurus Lacepede, 1804, *Ann. Mus. Paris iv.* p. 209

Trimeresurus Lacepede, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : Head covered above with small scales; a loreal pit between the pre ocular and loreal; scales in 17-23 rows; caudals paired or some of them single.

Key to the species of ***Trimeresurus*** Lacepede

1. First labial completely separated from the nasal.....2
   First labial partly or completely united with the nasal 3
2. Colour uniform green.....4
   Colour brown or greenish yellow 5
3. Scales in 21 rows.....*albolabris*
   Scales in 23 rows..... *erythrurus*
4. Scales in 21 rows.....*stejnegeri*
   Scales in 23 rows..... *popeorum*
5. Light or dark brown above, with large, squarish, irregularly placed dark brown spots or markings upon the back and smaller ones upon the sides..... *monticola*
   Greenish-yellow or olive above, with a dorsal series of transverse rhomboidal or irregualy shaped reddish-brown spots edged with black or almost entirely black and a series of more or less vertical spots along the sides .....*jerdoni.*

89. *Trimeresurus albolabris* Gray

Green Pit Viper

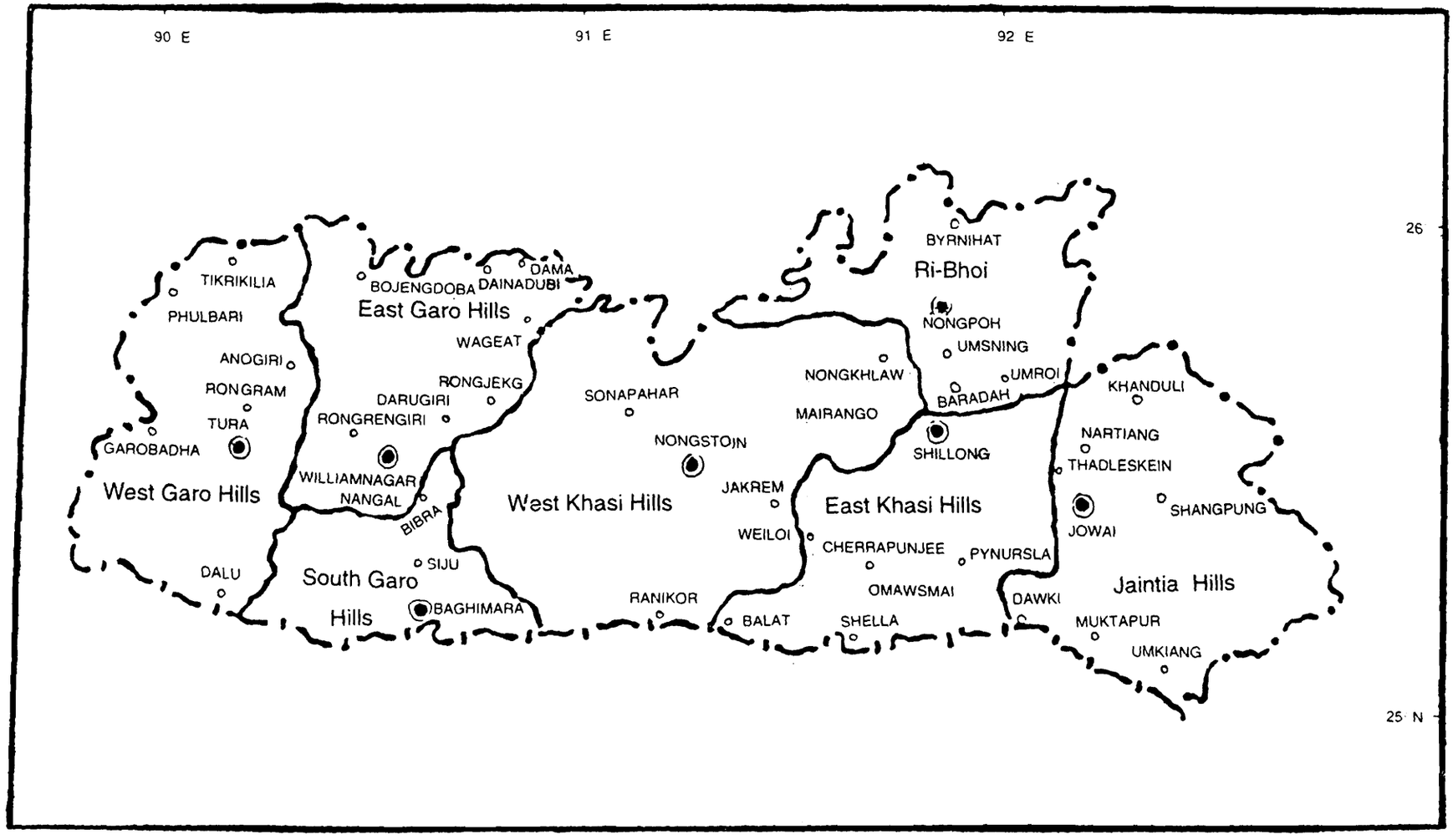
Trimeresurus albolabris Gray, 1842, *Zool. Misc.* p. 48

Trimeresurus albolabris Gray, Murthy, 1986, *The snake Book of India,* pp. 101.

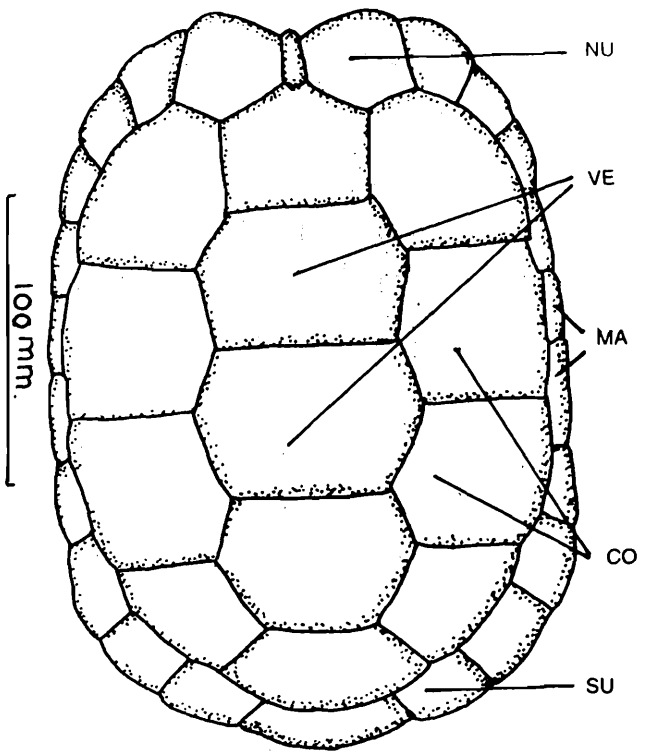
Material examined : 4 ex : 1 ex, India, Meghalaya, East Khasi Hills, Mawlai, 3.x.69, Coll. G. T. Allen; 1 ex, East Khasi Hills, Shillong, Upper Risa Colony, 30.vi.74, Coll. R. Mathew; 1 ex, East Khasi Hills, Shillong, Tripura Castle Road 31.vii.76, Coll. P. B. Thapa; 1ex, East Khasi Hills, Shillong, Risa colony, 15.viii.81, Coll. R. Mathew.

Diagnostic Characters : 8-12 scales between the supra oculars; 1-2 rows of scales between the labials and the elongate sub ocular; scales in 21 rows; ventrals 152-176; Caudals 36-72; Anal 1.

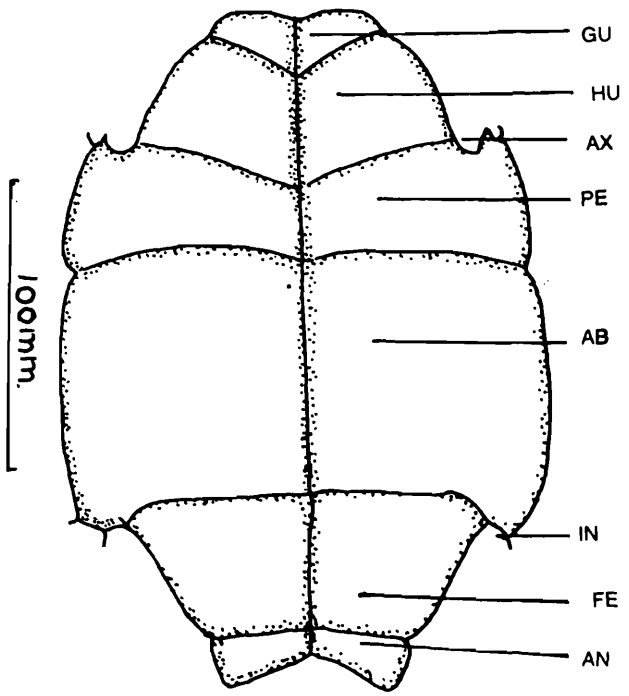
MAP, PLATES & COLOUR FIGURES



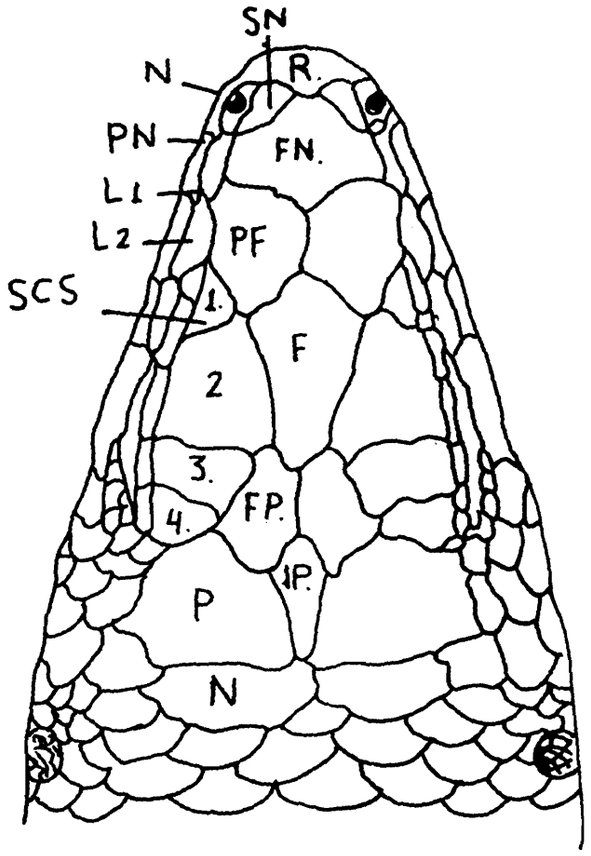
MAP OF MEGHALAYA SHOWING DIFFERENT DISTRICTS AND IMPORTANT LOCALITIES



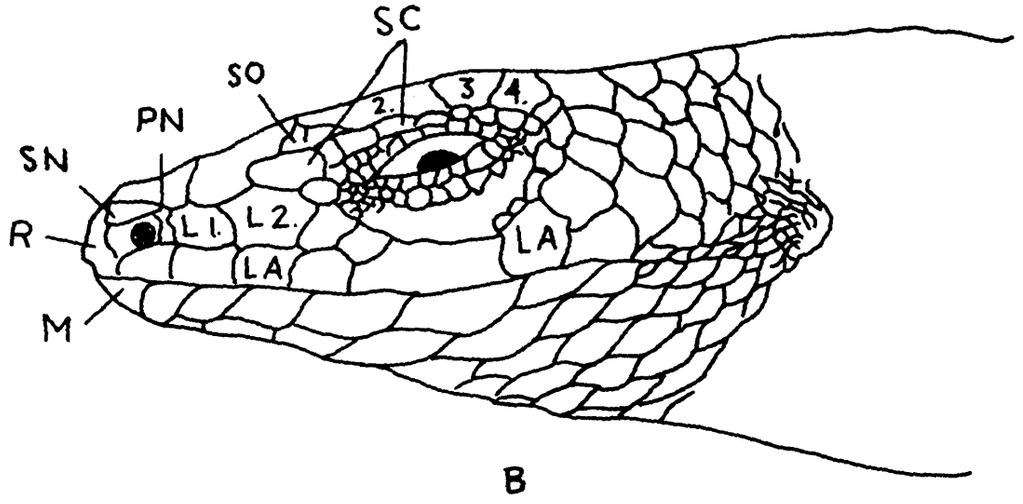
A. Carapace. NU. Nuchal; VE. Vertebrals; MA. Marginals; CO. Costals; SU. Supracaudal



B. Plastron. GU. Gular; HU. Humeral; AX. Axillary; PE. Pectral; AB. Abdominal; IN. Inguinal; FE. Femoral; AN. Anal.



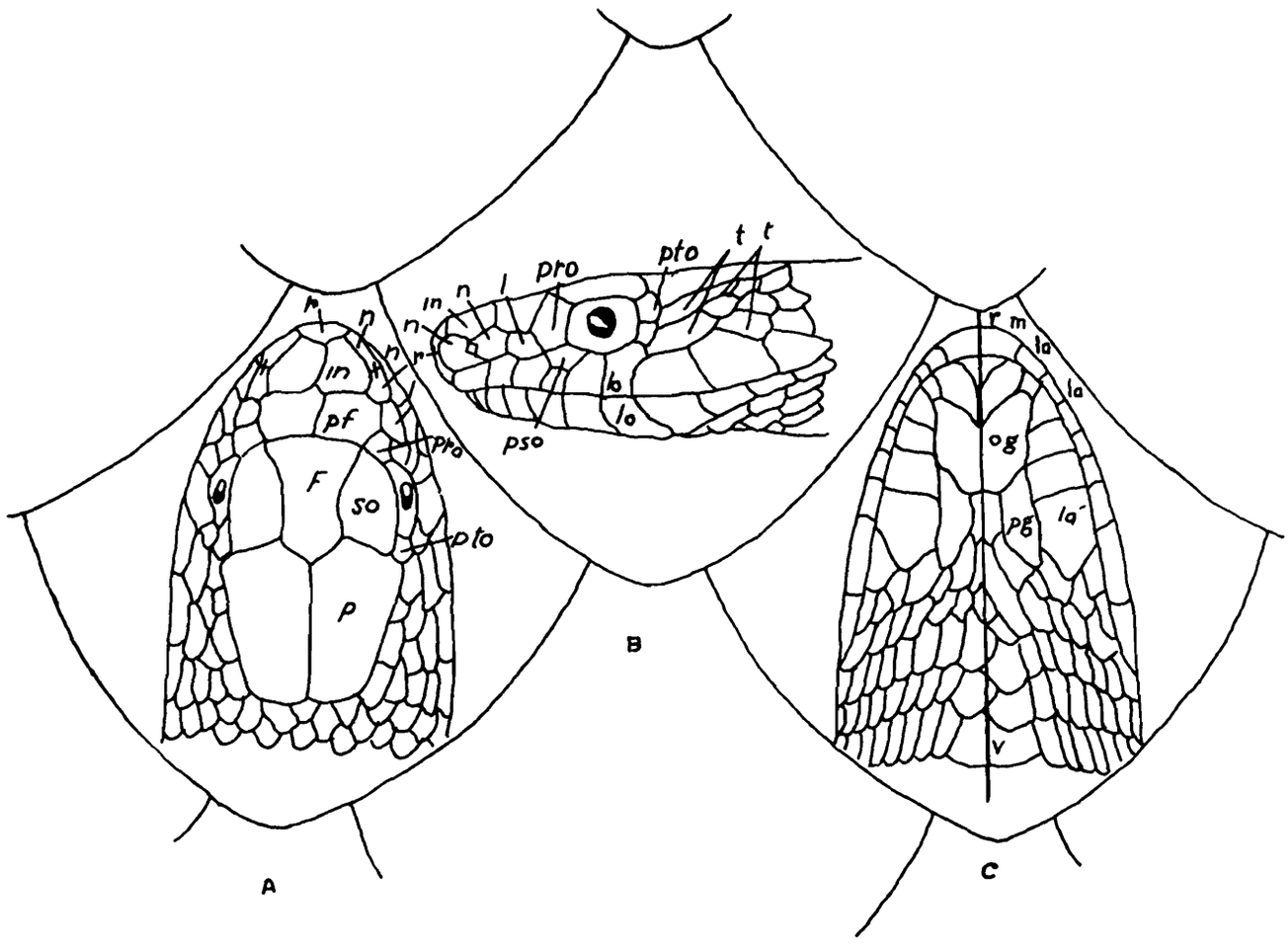
A



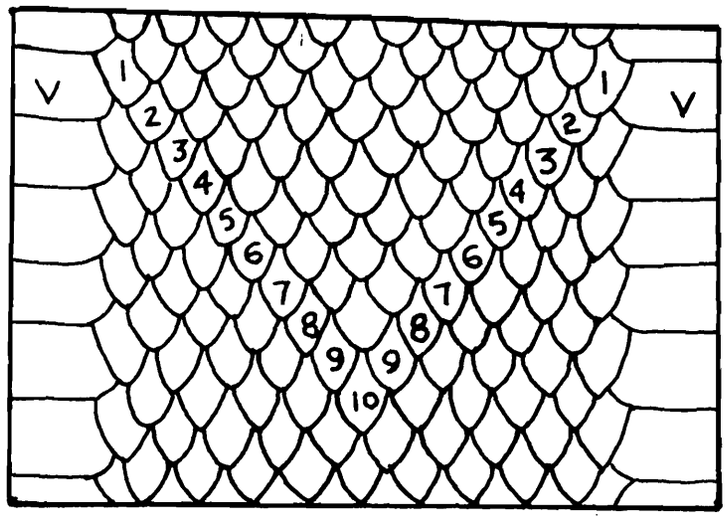
B

A. Dorsal view of a Scincid head. R. Rostral; SN. Supranasal; N. Nasal; PN.Postnasal; L 1 and 2 Loreals. SO & SCS. Supra oculars; FN. Fronto-nasal;; PF. Prefrontal; F. Frontal; FP. Fronto-parietal; IP. Interparietal; P. Parietal; N. Nuchal.

B. Lateral view of a Scincid head; SC. Supra ciliaries; M. Mental; LA. Upper labials.

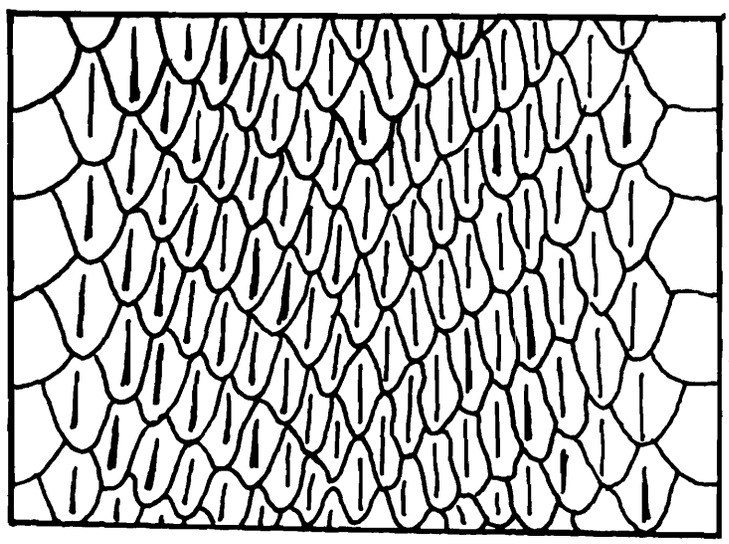


A, B and C. Dorsal, lateral and ventral views of a colubrid head. r. rostral; n. nasal; l. loreal; pro. preocular; pto. post ocular; in. internasal; pf. prefrontal; f. frontal;; so. supra ocular; p. parietal; pso. pre sub ocular; t. temporal; m. mental; la. labial; v. ventral; ag. anterior genials; pg. posterior genials.



A

A. Counting scale rows; V. Ventral.



B

B. Keeled dorsal scales.



1. *Kachuga Sylhetensis* (Jerdon)



2. *Lissemys punctata punctata* (Lacepede)



3.*Cyclemys dentata* (Gray)



4. *Trionyx hurum* (Gray)



5. *Gekko gecko* (Linnaeus)



6. *Cyrtodactylus khasiensis* (Jerdon)



7. *Gekko gecko* (Linnaeus) [ventral view]



8. *Ptyctolaemus gularis* Peters



9. *Ophisaurus gracilis* (Gray)



10. *Varanus bengalensis* (Daudin)



11. *Ramphotyphlops braminus* (Daudin)



12. *Ramphotyphlops braminus* (Daudin) [magnified]



13. *Typhlops diardi* Schlegel



14. *Python molurus* (Linnaeus)



15. *Amphiesma stolata* (Linnaeus)



16. *Blythia reticulata* (Blyth) [with eggs]



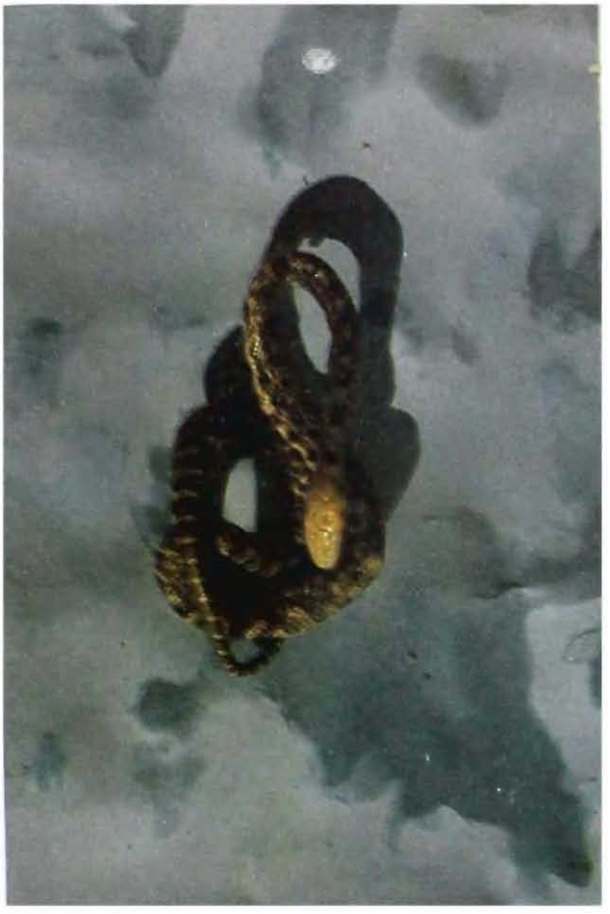
17. *Boiga cyanea* (Dumeril & Bibron)



18. *Boiga trigonata* (Schneider)



19. *Chrysopelea ornata* (Shaw)



20. *Elaphe cantoris* (Boulenger)



21. *Elaphe porphyracea* (Cantor)



22. *Elaphe radiata* (Schlegel)



23. *Lycodon jara* (Shaw)



24. *Oligodon albocinctus* (Cantor)



25. *Oligodon dorsalis* Gray & Hardwicke



26. *Oligodon dorsalis* Gray & Hardwicke [ventral side]



27. *Pareas monticola* (Cantor)



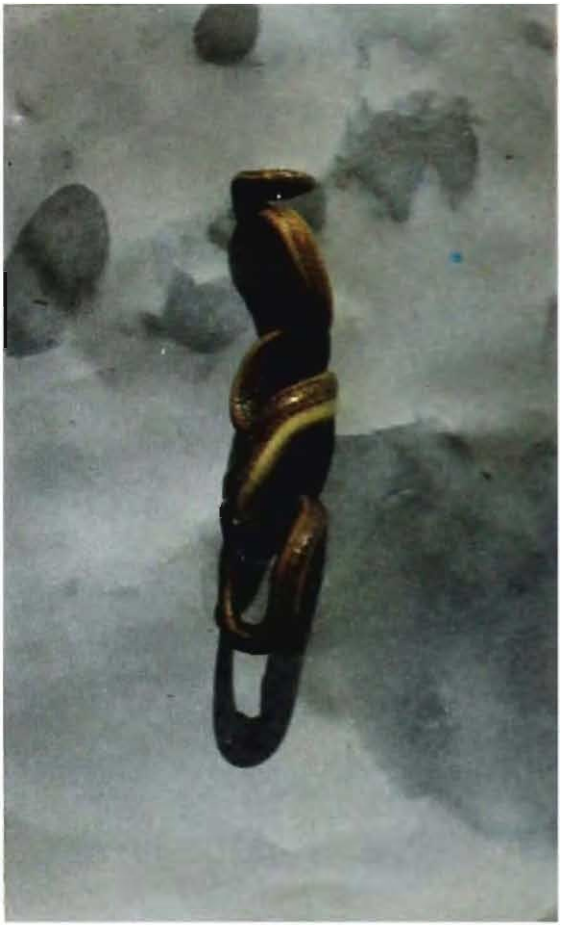
28. *Rhabdops bicolor* (Blyth)



29. *Rhabdophis himalayana* (Günther)



30. *Sibynophis collaris* (Gray)



31. *Trachischium monticola* (Cantor)



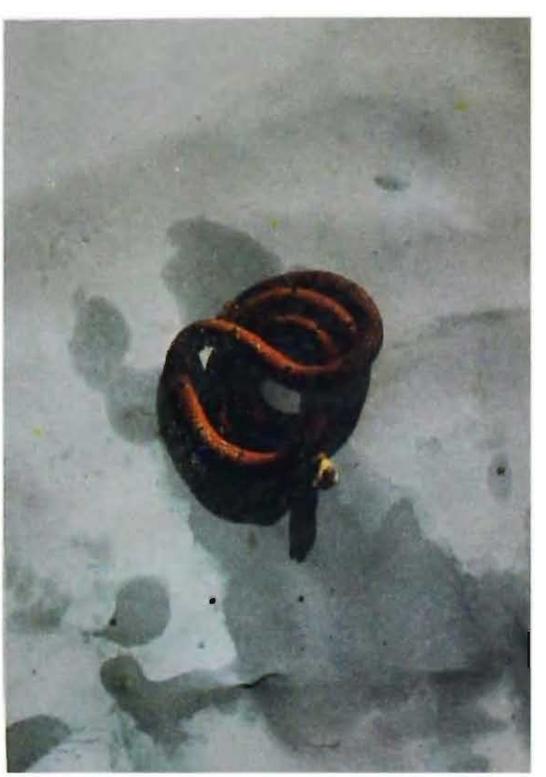
32. *Xenochrophis piscator* (Schneider)



33. *Bungarus bungaroides* (Cantor)



34. *Bungarus fasciatus* (Schneider)



35. *Callophis macclellandi* (Reinhardt)



36. *Naja naja* (Linnaeus)



37. *Trimeresurus jerdoni* Günther



38. *Trimeresurus monticola* Günther

Green above, yellowish or whitish below. A light stripe on scale row 1 starting from neck and extending to the base of the tail distinct in males. Tail prehensile.

Total length : 750 mm; tail 90 mm.

Distribution : Khasi Hills, Meghalaya; Andaman and Nicobar Islands. Eastern Himalayas; the whole of Indo-chinese sub region; Formosa; Hainan; Hong-Kong; Java; Malay Peninsula; Myanmar; Siam; Sumatra.

Remarks : Mathew (83) observed the variations in scale characters.

90. ***Trimeresurus erythrurus*** (Cantor)

Spot-tailed Pit Viper

Trigonocephalus erythrurus Cantor, 1839, *P. Z. S.* p.31.

Trimeresurus erythrurus (Cantor), Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined 4 ex : 1 ex, India, Meghalaya, East Khasi Hills, Shillong, 14.viii.75, Coll. R. G. Michael; 1 ex, East Khasi Hills, Shillong, 13.vi.81, donated by St. Anthony's College, Shillong; 2 ex, West Garo Hills, Tura Govt. College, Tura.

Diagnostic Characters : 11-14 scales between the supra oculars; 9-13 upper labials; 1-2 rows of scales between the labials and the elongate sub ocular; ventrals151-180; caudals 49-79; Anal 1.

Green above, yellowish below, a light stripe on scale row I distinct in males; tail usually mottled with brown, prehensile.

Total length : 1045 mm; tail 165 mm.

Distribution : Khasi and Garo Hills, Meghalaya; Assam; Nagaland; West Bengal. Eastern Himalayas.

91. ***Trimeresurus jerdoni*** Gunther

Jerdon's Pit Viper

(Col. Photo 37)

Trimeresurus jerdoni Gunther, 1875, *P. Z. S.* p. 233.

Trimeresurus jerdoni Gunther, Murthy 1986, *The Snake Book of India,* pp. 101.

Material examined : 1 ex; India, Meghalaya, East Khasi Hills, Shillong, Tripura Castle Road, 20.vii.86, Coll. S. C. Roy.

Diagnostic Characters : 6-9 scales between supra oculars; internasals separated from one another by 1-2 scales; 1-3 enlarged scales on a line between the internasals and the supra oculars; 7-8 upper labials; ventrals 167; caudals 61, paired; Anal 2.

Greenish yellow above with a dorsal series of transverse, rhomboidal, reddish-brown spots edged with black or almost entirely black, and a series of more or less vertical spots along the sides, head with symmetrical yellow markings.

Total length : 990 mm; tail 160 mm.

Distribution : Khasi Hills, Meghalaya; Assam; China; Myanmar; Tibet; Tong-King; Yunnan.

Remarks : Smith (1943) observed that Khasi Hills formed the Western most limit of its distribution.

92. ***Trimeresurus monticola*** Gunther

Blotched Pit Viper

(Col. Photo 38)

Trimeresurus monticola Gunther, 1864, *Rept. Brit. Ind.* p. 388.

Trimeresurus monticola Gunther, Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 29 ex : 1 ex, India, Meghalaya, East Khasi Hills, Shillong, Woodland compound, 4.x.66, Coll. G. K. Dey; 1 ex, East Khasi Hills, Shillong, Bishnupur, 23.vi.65, Coll. M. K. Sen; 1 ex, East Khasi Hills, Shillong, Lower New Colony, 19.i.71, Coll. A. S. Rao; 1 ex, East Khasi Hills, Shillong, Risa Colony, 9.x.73, Coll. P.B. Thapa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 28.vi.72, Coll. P. B. Thapa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 10.x.72, Coll. P. B. Thapa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 21.ix.73, Coll. R. S. Pillai; 1 ex, East Khasi Hills, Shillong, 10.ii.64, donated by Botanical Survey of India; 1 ex, East Khasi Hills, Shillong, Risa Colony, 6.x.71, Coll. S. K. Talukdar; 2 ex, East Khasi Hills, Shillong, Motinagar, 29.vii.75, Coll. R. Varlalthanga; 1 ex, East Khasi Hills, Shillong, Risa Colony, 14.vii.76, Coll. G. B. Chettri; 1 ex, East Khasi Hills, Shillong, Kenche's trace, 30.viii.71, Coll. S. K. Chanda; 1 ex, East Khasi Hills, Mawroh, 14.v.64, Coll. M. R. Rynth; 1 ex, East Khasi Hills, Shillong, Risa Colony, 19.x.74, Coll. Laluapliana; 1 ex, East Khasi Hills, Shillong 14.ix.75, Coll. P. B. Thapa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 23.viii.81, Coll. T. B. Rai; 1 ex, East Khasi Hills, Shillong, Risa Colony, 28.xi.83, Coll. Subhas Upadhyay; 1 ex, East Khasi Hills, Shillong, Fruit Garden, 25.vii.80, Coll. P. B. Thapa; 1 ex, East Khasi Hills, Shillong, Risa Colony, 19.ix.74, Coll. R.. Zoramthanga; 3 ex. East Khasi Hills, Shillong, Nongthymmai, 21.ix.84, Coll. Boremeng; 1 ex, East Khasi Hills, Shillong, 13.iii.85, Coll. R. N. Dey; 1 ex, East Khasi Hills, Shillong, Risa Colony, 24.viii.76, Coll. R. Zoramthanga; 1 ex, East Khasi Hills, Shillong, Tripura Castle Road, 22.vii.76, Coll. P. B. Thapa; 1 ex, East Khasi Hills, Shillong, 20.v.77, Coll. E. D. Albinus; 1 ex, East Khasi Hills, Shillong, Risa Colony, 18.viii.77, Coll. B. N. Marbaniang. 1ex, East Khasi Hills, Shillong, Pologround, 28.iv.76, Coll. R. Zoramthanga.

Diagnostic Characters : 5-9 scales between supraoculars; internasals usually separatede by 1 or 2 scales; 7-10 upper labials; 2-4 series of small scales betwen the eye and the labials; ventrals 137-176; caudals 36-62, paired; Anal 1.

Total length : 1100 mm; tail 150 mm.

Distribution : Khasi Hills, Meghalaya; Arunachal Pradesh; Assam; West Bengal. Eastern Himalayas; the whole of Indo-Chinese region; Annam; China; Formosa; Malay Peninsula; Nepal; Siam; Tibet; Tong-King; Yunnan.

Remarks : Common in Shillong. A lethargic and sluggish snake, it makes no attempt at escape. As a rodent eater its presence near human habitations is justifiable.

93. ***Trimeresurus popeorum*** Smith

Pope's Green Pit Viper

Trimeresurus popeorum Smith, 1937, *J. Bombay N. H. S.* xxxix, p. 730.

Trimeresurus popeorum Smith, Murthy, 1986, *The Snake Book of India,* pp. 101.

Diagnostic Characters : 10-13 scales between supra oculars; internasals separated by 1-2 scales; 9-11 upper labials; a single series of scales between the labials and the elongate subocular. Ventrals 164-170; caudals 60-76, paired; tail prehensile.

Green above, pale green or whitish below; a light stripe, bordered below with orange or chocolate, along the flank and base of the tail; a post ocular stripe may or may not be present.

Total length : 770 mm; tail 170 mm.

Distribution : Khasi Hills, Meghalaya; West Bengal. Borneo; Malay Peninsula; Myanmar; Siam; Sumatra.

Remarks : Not studied by me.

94. ***Trimeresurus stejnegeri*** Schmidt

Horse-Shoe Pit Viper

Trimeresurus stejnegeri Schmidt, 1925, *Amer. Mus. Nov.* no. 157, p.4,

Trimeresurus stejnegeri Schmidt, Murthy, 1986, *The Snake Book of India,* pp. 101.

Material examined : 1 ex; India, Meghalaya, East Khasi Hills, Shillong, Arbuthnot Road, 2.ix.71, Coll. R. S. Pillai.

Diagnostic Characters : 9-12 scales between the supra oculars; a single row of small scales between the sub ocular and the labials; ventrals 155-169; caudals 61-68 paired, Anal 1.

Green above, pale green or whitish below. A light stripe bordered below with orange or chocolate along the flank and base of the tail mainly on scale row 1, a light post oculr stripe, bordered above with orange or chololate present or absent; tail prehensile, usually pinkish.

Total length : 750 mm; tail 145 mm.

Distribution : Khasi Hills, Meghalaya; Arunachal Pradesh. Eastern Himalayas; Indo-Chinese Region; China; Formosa; Hainan; Myanmar; Yunnan.

DISTRIBUTION OF SERPENTES IN MEGHALAYA

		Khasi Hills	Garo Hills	Jaintia Hills
1.	*Ramphotyphlops braminus* (Daudin)	+	+	–
2.	*Typhlops diardi* Schlegel	+	+	–
3.	*T. jerdoni Boulenger*	+	–	–
4.	*T. tenuicollis* (Peters)	–	+	–
5.	*Python molurus* (Linnaeus)	+	–	–
6.	*Ahaetulla prasina* (Boie)	+	–	–
7.	*Amphiesma khasiensis* (Boulenger)	+	+	–
8.	*A. modesta* (Gunther)	+	–	–
9.	*A. parallela* (Boulenger)	+	+	–
10.	*A. platyceps* (Blyth)	+	–	–
11.	*A. stolata* (Linnaeus)	+	–	–
12.	*A. xenura* (Wall)	+	+	–
13.	*Blythia reticulata* (Blyth)	+	–	–
14.	*Boiga cyanea* (Dumeril & Bibron)	+	–	–
15.	*B. trigonata* (Schneider)	–	+	–
16.	*Calamaria pavimentata* Dumeril & Bibron	–	+	–
17.	*Chrysopelea ornata* (Shaw)	+	+	+
18.	*Elaphe cantoris* (Boulenger)	+	–	–
19.	*E. frenata* (Gray)	+	–	–
20.	*E. hodgsoni* (Boulenger)	–	+	–
21.	*E. porphyracea* (Cantor)	+	–	–
22.	*E. prasina* (Blyth)	+	+	–
23.	*E. radiata* (Schlegel)	+	+	–
24.	*Liopeltis frenatus* Gunther	+	–	–
25.	*Lycodon aulicus* (Linnaeus)	–	+	–
26.	*L. jara* (Shaw)	+	+	–
27.	*Oligodon albocinctus* (Cantor)	+	–	–
28.	*O. cinereus* (Gunther)	–	+	–
29.	*O. cyclururs* (Cantor)	–	+	–
30.	*O. dorsalis* Gray & Hardwicke	–	+	–

31.	*O.theobaldi* (Gunther)	–	+	–
32.	*Pareas monticola* (Cantor)	+	–	–
33.	*Psammodynastes pulverulentus* (Boie)	+	–	–
34.	*Pseudoxenodon macrops* (Blyth)	+	–	–
35.	*Ptyas korros* Schlegel	–	+	–
36.	*Rhabdops bicolor* (Blyth)	+	–	–
37.	*Rhabdophis himalayana* (Gunther)	+	–	+
38.	*R. subminiata* (Schlegel)	+	+	+
39.	*Sibynophis chinensis* (Gunther)	–	+	–
40.	*S. collaris* (Gray)	+	–	–
41.	*Stoliczkaia khasiensis* Jerdon	+	–	–
42.	*Trachischium monticola* (Cantor)	+	–	–
43.	*Xenochrophis cerasogastor* Cantor	+	–	–
44.	*X. piscator* (Schneider)	+	+	–
45.	*Bungarus bungaroides* (Cantor)	+	+	–
46.	*B. fasciatus* (Schneider)	–	+	–
47.	*B. niger* Wall	–	+	–
48.	*Callophis macclellandi* (Reinhardt)	+	+	–
49.	*Naja naja* (Linnaeus)	+	+	–
50.	*Ophiophagus hannah* (Cantor)	+	–	–
51.	*Trimeresurus albolabris* Gray	+	–	–
52.	*T. erythrurus* (Cantor)	+	+	–
53.	*T. jerdoni* Gunther	+	–	–
54.	*T. monticola* Gunther	+	–	–
55.	*T.popeorum* Smith	+	–	–
56.	*T. stejnegeri* Schmidt.	+	–	–

NB.

+ = Occurrence.

– = non occurrence.

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ANURAN (AMPHIBIA)

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INTRODUCTION

The richest expression in diversity and abundance of amphibians of the northeast India is met with in the Meghalaya as evidence from the accounts of amphibia by Boulenger (1890, 1920), Kripalani (1961), Yazdani & Chanda (1971), Pillai & Yazdani (1973), Pillai & Chanda (1973, 1977, 1979, 1980), Sahu & Khare (1983).

Meghalaya lies between 23°47′ and 26°10′ north latitude and 89°0′ and 92°47′ east longitude. The state is bounded by Bangladesh on the south and west and by Assam on the north and east. It comprises an area of 22,549 sq. km. The state consists of five districts, viz. East Garo hills, West Garo hills, East Khasi hills, West Khasi hills and Jaintia hills.

The present study initiated with the sorting out and identification of diversified amphibian (Anura) collections accumulated at the Eastern Regional Station of the Zoological Survey of India, Shillong through surveys conducted by different survey parties over a period of 1978-1990. All the collection data are not furnished here but this has resulted in reporting of a total of 1605 examples belonging to 33 species of amphibia (Anura) under six families and eleven genera. This account will provide a ready reference for those interested in the amphibian fauna from Meghalaya. Six species marked by (*) have been reviewed from literature due to lack of relevant material for study from the state.

Classified list of amphibian (Anura) species known from Meghalaya

Class AMPHIBIA

Order ANURA

Family PELOBATIDAE

Genus ***Megophrys*** Kuhl & V. Hass

1. *Megophyrs parva* (Boulenger, 1893)

Genus ***Scutiger*** Theobald

2. *Scutiger sikkimensis* (Blyth, 1854)

Family BUFONIDAE

Genus ***Bufo*** Laurenti

3. *Bufo himalayanus* Gunther, 1894
4. *Bufo melanostictus* Schneider, 1799

Genus ***Bufoides*** Pillai & Yazdani

5. *Bufoides meghalayana* (Yazdani & Chanda, 1971)

Family HYLIDAE

Genus ***Hyla*** Laurenti

6. *Hyla annectens* (Jerdon, 1854)

Family MICROHYLIDAE

Genus ***Microhyla*** Tschudi

7. *Microhyla berdmorei* (Blyth, 1856)
8. *Microhyla ornata* (Dum. & Bibron, 1841)

Family RANIDAE

Genus ***Amolops*** Cope

9. *Amolops afghanus* (Gunther, 1858)
10. *Amolops formosus* (Gunther, 1875)

Genus ***Rana*** Linnaeus

11. *Rana alticola* Boulenger, 1882
12. *Rana assamensis* Sclater, 1892
13. *Rana bilineata* Pillai & Chanda, 1977
14. *Rana cyanophlyctis* Schneider, 1799
15. *Rana danieli* Pillai & Chanda, 1977
16. *Rana gerbillus* Annandale, 1912
17. *Rana garoensis* Boulenger, 1920
18. *Rana khasiana* (Anderson, 1871)
19. *Rana laticeps* Boulenger, 1882
20. *Rana limnocharis* Boiesduval, 1835
21. *Rana livida* (Blyth, 1855). Boisduval, 1835
22. *Rana malabarica* Tschudi, 1838
23. *Rana mawphlangensis* Pillai & Chanda, 1977
24. *Rana mawlyndipi* Chanda, 1990
25. *Rana leptoglossa* (Cope, 1868)

Family RHACOPHORIDAE

Genus ***Philautus*** Gistel

26. *Philautus andersonii* (Ahl, 1927)
27. *Philautus cherrapunjiae* Roonwal & Kripalani, 1961
28. *Philautus garo* (Boulenger, 1919)
29. *Philautus kempiae* (Boulenger, 1919)
30. *Philautus shillongensis* Pillai & Chanda, 1973

Genus ***Polypedates*** Tschudi

31. *Polypedates leucomystax* (Gravenhorst, 1829)

Genus ***Rhacophorus*** Kuhl

32. *Rhacophorus bipunctatus* Ahl., 1927
33. *Rhacophorus maximus* Gunther, 1858

MATERIAL AND METHODS

To achieve the purpose of the present work several visits were made to different localities of Meghalaya viz. Garo hills, Khasi hills and Jaintia hills. All the collections were made from different habitats such as marshes, streams, river banks, sandy soil, under big boulders and stones, under decaying logs, inside the caked earth on the rock, inside certain hole, on the tree, vicinity of shaded mountain streams, from open fields with vegetation, cultivated fields, from permanent quiet water of plains, grasslands, from mountains of moderate altitude, open level and hilly regions of low to medium altitude.

After making the collection, the materials were killed by anesthetizing them with chloroform and then put into 8% solution of formaldehyde for fixation. Before putting in the formaldehyde solution a small incision (for bigger material) was given on the belly to penetrate the solution inside the viscera for their proper preservation. After proper fixation for two to three days the material was taken out from the solution and washed properly in water and then put them in 90% alcohol for permanent preservation for study.

Key to the families of amphibia (Anura)

1. Upper jaw toothed 2

   Jaws toothless 5

2. Digits with an intercalary cartilage between penultimate and terminal phalanges; toes two-third to fully webbed, fingers minutely to fully webbed ..... ***Rhacophoridae***

   Fingers free 3

3. Terminal phalanges of fingers and toes free, pointed; omosternum present, small and cartilaginous; sternum with or without a bony style ..... ***Pelobatidae***

   Terminal phalanges of fingers and toes not pointed 4

4. Terminal phalanges of fingers and toes claw shaped, swollen at the base; omosternum and sternum cartilaginous (rarely ossified).....***Hylidae***

   Terminal phalanges of fingers and toes of various shapes but never claw-shaped; omosternum and sternum with or without bony style.....***Ranidae***

5. Pupil vertical or circular; tongue oval; skin smooth; omosternum rudimentary or absent; sternum cartilaginous.....***Microhylidae***

   Pupil horizontal; tongue oval; skin rough and tuberculated; omosternum usually absent, if present it is reduced to a narrow cartilage; mouth narrow, pointed.....***Bufonidae***

Family PELOBATIDAE

Diagnosis : Upper jaw toothed, lower jaw toothless. Diapophysis of sacral vertebra strongly dilated. Terminal phalanges of fingers and toes free, simple and pointed. Omosternum small, cartilaginous. Sternum with or without a bony style. Vertebrae procoelous or opisthocoelous. Ribs absent.

Distribution : Asia, Europe, Africa, North America, Central America and South America.

Key to the genera of PELOBATIDAE

Paratoid gland present; tongue rounded in shape.....***Scutiger***

Paratoid gland absent; tongue subround in shape.....***Megophrys***

Genus ***Scutiger*** Theobald, 1868

1868. *Scutiger* Theobald, *J. Asiat. Soc. Beng.* : 83.

1985. *Scutiger Frost, Amphibian species of the world* : 417.

Diagnosis : Skin laterally thick, glandular and tuberculated. Tongue round. Vomerine teeth generally absent, sometimes present. Pupil horizontal. Tympanum hidden. Paratoid gland present. Fingers free; toes webbed; tips of fingers and toes without prominent discs.

Distribution : India; Nepal; Indo China.

1. ***Scutiger sikkimensis*** (Blyth, 1854)

1854. *Bombinator sikkimensis* Blyth, *J. Asiat. So. Beng.*, **23** : 300.

1868. *Scutiger sikkimensis* Theobald, *J. Asiat. Soc. Beng.*, **3** : 88.

Diagnosis : Colour dorsally varying from yellowish to brown. Entire posterior part of body including belly and throat yellowish with conspicuous black spots. Dorsal skin with large porous warts forming irregular longitudinal series on the back. Limbs with dark brown patches. Ventral surface smooth. Head broader than long; nostrils much nearer to tip of snout than eyes; tympanum hidden. Paratoid glands small and indistinct. Fingers free with dilated tips. First finger slightly longer than second. Subarticular tubercles small, distinct and of various sizes. Tibiotarsal articulation reaching shoulder. Tips of toes minutely swollen; toes half-webbed. An oval shaped inner metatarsal tubercle present.

Material examined : 3 adults are available from Mawpat and Barapani, Khasi hills, Meghalaya.

Remarks : Out of 18 valid species of the genus *Scutiger* (Frost, 1985) only one species *Scutiger sikkimensis* has been found to occur in Indian region which is restricted to northeast India. Pillai & Chanda (1979) recorded the species for the first time in Meghalaya. Chanda (1986) recorded the species for the second time in Meghalaya. During the present study it has been recorded for the third time in Meghalaya. In India this species is strictly restricted to Meghalaya. It is a rare and purely nocturnal in habit.

Genus ***Megophrys*** Kuhl & V. Hass, 1822

1822. *Megophrys* Kuhl & V. Hass, *Alg. Konst. en letter-bode* : 102.

1985. *Megophrys* Frost, *Amphibian species of the world* : 413.

Diagnosis : Skin tuberculated. Tongue subround, entire and free behind. Vomerine teeth present, sometimes absent. Pupil vertical. Tympanum indistinct or hidden.

Paratoid gland absent. Fingers free. Toes free or minutely webbed. Tips of fingers and toes not dilated. Outer metatarsals united but partly separated by web. Omosternum cartilaginous, sometimes calcified. Sternum with a bony style.

Distribution : India; Nepal; China; Indo-China, Malaysia; Indonesia; Philippines; Sumatra; Java; Borneo.

2. ***Megophrys parva*** (Boulenger, 1893)

1893. *Leptobrachium parva* Boulenger, *Ann. Mus. Civ. Stor. nat. Genova,* (2) **13** : 344.

1985. *Megophrys parva* Frost, *Amphibian species of the world* : 416.

Diagnosis : Dorsally more or less brown with dark markings. An indistinct triangular spot present between the eyes. Limbs with more or less distinct cross-bars. A small white tubercle present on each side of the breast. Skin smooth with a number of scattered minute conical tubercles. A strong supratympanic fold connects the eyes and terminate at the shoulder in a glandule. Upper eyelids with sharp raised edge. Head broader than long; nostrils equidistant from eyes and tip of snout; tympanum feebly distinct. Fingers with feebly swollen tips. Subarticular tubercles indistinct. Hindlimbs long; tibiotarsal articulation reaching beyond mouth. Toes blunt, minutely webbed. Subarticular tubercles indistinct. An indistinct inner metatarsal tubercle present, outer metatarsal tubercle absent.

Material examined : 11 adult frogs were collected from Cherrapunjiae, Shillong of Khasi hills, and Rongrengiri of Garo hills, Meghalaya.

Remarks : This is a rare species of frog and generally found in the hilly regions. Pillai & Chanda (1979) recorded the species for the first time in Meghalaya.

Family BUFONIDAE

Diagnosis : Tongue oval, skin rough and tuberculated. Pupil horizontal. Vomerine teeth absent. Jaws toothless. Diapophyses of sacral vertebrae dilated. Terminal phalanges of fingers and toes obtuse or T-shaped. Sternum generally cartilagenous. Vertebrae procoelous.

Distribution : Throughout the world, except Australia, Madagascar, New Guinea and Pacific Islands.

Remarks : A total of 18 genera have so far been recorded from the world of which only two genera have been recorded from Meghalaya.

Key to the genera of BUFONIDAE

Paratoid gland present; tympanum present ..... ***Bufo*** Laurenti

Paratoid gland absent; tympanum hidden ..... ***Bufoides*** Pillai & Yazdani

Genus ***Bufo*** Laurenti, 1768

1768. *Bufo* Laurenti, *Synopsis Rept. Vienna* : 25.

1985. *Bufo* Frost, *Amphibian species of the world* : 29.

Diagnosis : Skin rough and tuberculated. Tongue elliptic, entire. Vomerine teeth absent. Pupil horizontal. Tympanum distinct. Paratoid glands large and prominent. Head generally without bony ridges. Fingers fee, toes more or less webbed. Outer metatarsals united. Diapophyses of sacral vertebrae more or less dilated.

Distribution : Throughout the world, except Australia, Madagascar, New Guinea and Islands of the Pacific.

Remarks : A total of 205 species have so far been recorded from the world of which only two species have been recorded from Meghalaya.

Key to the species of **Bufo**

Tympanum large and very distinct, more than two-third diameter of eyes; tibiotarsal articulation reaching eyes. ..... *melanostictus* Schneider

Tympanum very small and indistinct, less than half the diameter of eyes. Tibiotarsal articulation reaching nearly tip of snout ..... *himalayanus* Gunther

3. ***Bufo himalayanus*** Gunther, 1864

1864. *Bufo himalayanus* Gunther, *Rept. Brit. Ind.* : 422.

1985. *Bufo himalayanus* Frost, *Amphibian species of the world* : 30.

Diagnosis : Dorsally uniform brown to yellowish with dark-brown to black dots. Ventrally yellowish, spotted with brown. Dorsal skin rough with large warts and tubercles, ventral surface almost smooth. Head broader than long. Tympanum very small and indistinct, less than half of eyes. Paratoid glands large and prominent. Fingers free, toes two-third webbed. Tibiotarsal articulation reaching nearly tip of snout. A moderately prominent inner and a smaller rounded outer metatarsal tubercle present.

Material examined : 5 adults are available from Shillong, Mawpat, Barapani and Umtynger, Khasi hills, Meghalaya.

Remarks : This species is not widely distributed like *Bufo melanostictus* and generally found to occur in high altitudes. In this species tympanum is much smaller than *Bufo melanostictus* and in some examples these are totally lacking. Moreover, the pariental ridges are also noted to be absent in some specimens. Chanda (1976) recorded the species for the first time in Meghalaya. It is the second record of the species from the above area after Chanda (1976).

4. ***Bufo melanostictus*** Schneider, 1799

1799. *Bufo melanostictus* Schneider, *Hist. Amp. I, Jena.* : 216.

1985. *Bufo melanostictus* Frost, *Amphibian species of the world* : 82.

Diagnosis : Dorsally brown to yellowish brown, sometimes with black spots. Ventrally yellowish. Skin dorsally rough with more or less prominent spiny warts and tubercles of various sizes. Ventral surface smooth. Head slightly broader than long. Snout very short, blunt. Tympanum large and very distinct, more than two-third diameter of eyes. Paratoid glands very large and prominent. Fingers free; tips of fingers blunt. First finger slightly shorter than second. Subarticular tubercles very small. Hindlimbs short. Tibiotarsal articulation reaching eyes. Toes blunt, half-webbed. Subarticular tubercles very small and indistinct. A moderately large inner and a smaller outer metatarsal tubercle present.

Material examined : 25 adults and 32 juveniles are available from Shillong, Bishnupur, Mawblong, Mawphlong, Mawpat, Barapani, Umtham, Umran, Shillong Peak of Khasi hills and Tura, Darugiri of Garo hills, Meghalaya.

Distribution : Throughout Indian region; Burma; Sri Lanka; China; Sumatra; Java; Borneo; Malaysia; Indonesia; Philippines.

Remarks : This is the commonest species among the Indian toads and is found to occur in almost all biotopes. In the Himalayas it has been recorded upto an altitude of 3048 m. This species usually remains hiding in holes during the day and come out in the evening hunting for insects in and around human dwellings. During breeding season the females develop excrescences on the two inner fingers (Van Kampen, 1928). According to Pope (1931) females are more variable in size.

Genus ***Bufoides*** Pillai & Yazdani, 1973

1973. Bufoides Pillai & Yazdani, J. zool. Soc. India, *25(1&2) : 65-70.*

1985. Bufoides Frost, *Amphibian species of the world : 65.*

Diagnosis : Skin rough with prominent tubercles. Tongue elliptic; vomerine teeth absent. Pupil horizontal. Tongue hidden. Paratoid glands absent. Fingers free, toes almost fully webbed; tips not dilated. Omosternum absent. Sternum cartilaginous. Diapophyses of sacral vertebra dilated. Eggs large, distinctly pigmented.

Distribution : India : Meghalaya, Khasi hills.

Remarks : This is the monotipic genus and is endemic to Indian region.

5. ***Bufoides meghalayana*** (Yazdani & Chanda, 1971)

1971. *Ansonia meghalayana* Yazdani & Chanda, *J. Assam Sci. Soc*, **14**(1) : 76-80.

1985. *Bufoides meghalayana* Frost, *Amphibian species of the world* : 65.

Diagnosis : Dorsally uniform dark brown to black. Ventrally greyish, spotted with brown. Dorsal skin rough with warts and tubercles of different sizes. Head broader than long, depressed. Nostrils much nearer to tip of snout than eyes. Eyes prominent, directed downwards. Tympanum hidden. Fingers free, dorsally flattened with slightly dilated tips. Subarticular tubercles not prominent. Hindlims moderately long; tibiotarsal articulation reaching posterior corner of eyes. Toes with dilated tips, almost fully webbed. Subarticular tubercles indistinct. A large, prominent inner and in a very small outer metatarsal tubercle present.

Material examined : 23 adults are available from Mawblong and Cherrapunjiae, Khasi hills, Meghalaya.

Distribution : India : Khasi hills, Meghalaya.

Remarks : This species was originally recorded as *Ansonia meghalayana* by Yazdani & Chanda, (1971) from Mawblong, Khasi hills, Meghalaya. Subsequently, Pillai & Yazdani (1973) erected a new genus *Bufoides* to accommodate the species. It is an endemic species to Indian subcontinent and is restricted to Meghalaya.

Family HYLIDAE

Diagnosis : Upper jaw toothed, lower jaw usually toothless. Diapophyses of the sacral vertebra dilated. Terminal phalanges of fingers and toes claw-shaped, swollen at the base. Omosternum cartilaginous (rarely calcified); sternum cartilaginous; vertebrae procoelous.

Distribution : Asia; Eurasia; Africa; North and South America; Australia; New Guinea.

Remarks : A total of 30 genera have so far been recorded from the world of which only one genus *Hyla* has been found to occur in Indian subcontinent and is restricted to Meghalaya and Assam.

Genus ***Hyla*** Laurenti, 1768

1768. *Hyla* Laurenti, *Synopsis Rept.*, Vienna : 32.

1985. *Hyla* Frost, *Amphibian species of the world* : 151.

Diagnosis : Skin almost smooth, sometimes tuberculated. Tongue entire or slightly pointed, adherent slightly or free behind. Vomerine teeth usually present. Pupil horizontal. Tympanum distinct or hidden. Paratoid glands absent. Fingers generally free; toes webbed. Outer metatarsal united or slightly separated. Omosternum and sternum cartilaginous.

Distribution : India : Meghalaya, Assam. Burma; China; Indo-China; Malaysia.

Remarks : Only one species viz. *Hyla annectens* (Jerdon), is known from Indian region and is strictly restricted to Meghalaya and Assam of northeast India.

6. ***Hyla annectens*** (Jerdon, 1870)

1870. *Polypedates annectens Jerdon, Proc. Asiat. Soc.* Bengal : 84.

1985. *Hyla annectens* Frost, *Amphibian species of the world* : 125.

Diagnosis : Dorsally grey to slate colour. Ventral surface yellowish. A light brownish streak present from eye to nostril. Dorsal skin almost smooth. Ventral surface smooth. Head broader than long. Snout rounded; canthus rostralis obtusely pointed. Tympanum distinct. Fingers long, free with claw. Subarticular tubercles prominent. Hindlimbs long. Tibiotarsal articulation reaching anterior corner of eyes. Toes clawed with distinct swollen tips. Two-third webbed. Subarticular tubercles moderately prominent. An oval shaped inner metatarsal tubercles present. Outer metatarsal tubercle absent.

Material examined : 14 adult examples collected from Mawphlong, Cherrapunjiae, Umran, Shillong, Khasi hills, Meghalaya.

Distribution : India : Meghalaya, Assam; Burma; Thailand; Vietnam; China.

Remarks : *Hyla annectens* the only species of the above genus is known from Indian region and is restricted to Assam and Meghalaya of northeast India. Pillai & Chanda (1970) recorded the species from Meghalaya for the second time.

Family MICROHYLIDAE

Diagnosis : Vomerine teeth absent. Jaws toothless. Pupil vertical and circular. Terminal phalanges of fingers and toes simple or T-shaped. Omosternum rudimentary or absent. Vertebrae procoelous or diplasio-coelous. Diapophyses of sacral vertebra dilated.

Distribution : Asia; Africa; Madagascar; South America; Central America; New Guinea.

Remarks : A total of four genera of the family Microhylidae have so far been recorded from the Indian subcontinent of which, only one genus *Microhyla* has been found to occur in Meghalaya.

Genus ***Microhyla*** Tschudi, 1838

1838. *Microhyla* Tschudi, *Mem. Soc. Sc. nat. Nauchatel,* 2 : 28.

1985. *Microhyla* Frost, *Amphibian species of the world* : 81.

Diagnosis : Skin smooth or with small warts. Tongue narrow and elliptical, free and entire behind. Vomerine teeth absent. Pupil vertical and circular. Tympanum hidden. Paratoid gland absent. Pupil vertical and circular. Tympanum hidden. Paratoid gland absent. Fingers free. Toes free, webbed to a greater or lesser extent. Tips of fingers and toes more or less dilated. Outer metatarsal united. Omosternum absent. Sternum cartilaginous. Terminal phalanges T-shaped.

Distribution : India ; Burma; Sri Lanka; China; Malaysia; Indonesia.

Remarks : A total of four species of this genus are known from Indian region and of these two species are known from Meghalaya.

Key to the species of ***Microhyla***

Tibiotarsal articulation reaching beyond tip of snout; toes fully webbed ..... *berdmorei* (Blyth)

Tibiotarsal articulation reaching a little in front of shoulder; toes with only rudiments of web.....

.....*ornata* (Dum & Bibron)

7. *Microhyla berdmorei* (Blyth, 1856)

1856. *Engystoma berdmorei* Blyth, *J. Asiat. Soc. Beng.*, 24 : 710.

1985. *Microhyla berdmorei* Frost, *Amphibian species of the world :* 83.

Diagnosis : Dorsally varying from pink to dark brown, sometime with brownish spots or marbling scattered on the dorsal surface of the body. Limbs with faint cross-bands. Dorsal skin smooth, occasionally with a few indistinct tubercles on the back and on the sides of the body. Ventral surface almost smooth. Head much broader than long, pointed. Nostrils slightly nearer to tip of snout than eyes. Tympanum hidden. Fingers free with rounded tips. Subarticular tubercles large and prominent. Tibiotarsal articulation reaching beyond tip of snout. Tips of toes swollen into rounded tips, fully webbed. An oval shaped inner and a rounded outer metatarsal tubercles present.

Material examined : 8 exs. adults are available from the Umsing and Shillong of Khasi hills. Meghalaya.

Distribution : India : Meghalaya, Assam, Arunachal Pradesh, Mizoram. Burma; Indo-China; Malaysia.

Remarks : This species was originally recorded from Burma (Blyth, 1956). Pillai & Chand (1981) recorded the species for the first time in Indian subcontinent. In India this species seems to be restricted to northeast India.

8. *Microhyla ornata* (Dum & Bibron, 1841)

1841. *Engystoma ornata* Dum & Bibron, *Erp. Gen.*, **8** : 745.

1985. *Microhyla ornata* Frost, *Amphibian species of the world* : 84.

Diagnosis : Colour dorsally varying from olive to greyish-brown with dark markings. Limbs with incomplete dark cross bands. Ventral surface uniformly coloured. Skin smooth, sometimes with small tubercles on the dorsal surface. Ventral surface almost smooth. Head broader than long; snout projecting slightly beyond lower jaw. Nostrils nearer to tip of snout than eyes. Tympanum hidden. Fingers free. Tips of fingers dilated into small discs. First finger shorter than second. Subarticular tubercles small and prominent. Hindlimbs long. Tibiotarsal articulation reaching slightly in front of shoulder. Toes with only rudiment of webs. Tips of toes dilated into very small discs. Subarticular tubercles small and prominent. An oval shaped inner metatarsal tubercle present. Outer metatarsal tubercle absent.

Material examined : 12 adults are available from Shillong. Khasi hills, Meghalaya.

Distribution : India : West Bengal, Assam, Meghalaya, Mizoram. Nagaland, Manipur, Tripura, Kerala. Sri Lanka; China; Malaysia.

Remarks : This is the commonest species of the family Microhylidae. This species has been found to occur in different biotopes such as from desert to an altitude of 1524 m. Generally June-July is the breeding season of this frog. Pillai & Chanda (1981) recorded the species for the first time in Garo hills Meghalaya. It is burrowing in habit.

Family RANIDAE

Diagnosis : Upper jaw toothed, lower one nearly always toothless. In most species of this family, the fingers perfectly free, but the toes more or less completely webbed. Terminal phalanges of fingers and toes of various shapes and sizes. Omosternum and sternum with or without bony style. Vertebrae procoelous.

Distribution : Eurasia; Africa; North and South America; Australia.

Key to the genera of the family **RANIDAE**

Tips of fingers and toes with circummarginal groove ..... ***Amolops*** Cope

Tips of fingers and toes simple without any groove ..... ***Rana*** Linnaeus

Genus ***Amolops*** Cope, 1865

1865. *Amolops* Cope, *Nat. Hist. Rev.* (N.S.), **5** : 97.

1985. *Amolops* Frost, *Amphibian species of the world* : 452.

Diagnosis : Skin smooth, sometimes tuberculated. Pupil horizontal. Tympanum distinct. Paratoid glands absent. Fingers free; toes more or less webbed. Tips of fingers and toes dilated into distinct discs with crescentic or horse-shoe shaped groove, separating upper from the lower surface. Omosternal style forked at the base.

Distribution : India : (Eastern Himalayas between 350 m to 1400 m), Meghalaya, Assam, Mizoram, Tripura; Burma; China.

Key to the species of ***Amolops***

Tibiotarsal articulation reaching beyond tip of snout; interorbital space less than upper eyelid; subarticular tubercles large and prominent ..... *afghanus* (Gunther)

Tibiotarsal articulation reaching nostril or tip of snout; interorbital space equals to upper eyelid; subarticular tubercles moderate ..... *formosus* (Gunther)

9. ***Amolops afghanus*** (Gunther, 1858)

1858. *Polypedates afghanus* Gunther, *Cat. Bat. Sal. Brit. Mus*, London : 160.

1985. *Amolops afghanus* Frost, *Amphibian species of the world* : 453.

Diagnosis : Dorsally dark-olive to brown, slightly yellowish on the ventral side. Limbs with dark cross-bands. Skin smooth, very often with large warts on sides. Head slightly broader than long; snout pointed, slightly projecting beyond lower jaw. Nostrils equidistant from eyes and tip of snout.

Interorbital width less than upper eyelid. Tympanum small, distinct and nearly one-third of eyes. Fingers free with prominent dermal broader and large discs with well developed grooves separating upper from the lower surface. Subarticular tubercles large and prominent. Tibiotarsal articulation reaching beyond tip of snout. Toes with prominent well developed grooves separating upper from the lower surface; fully webbed. Subarticular tubercles large and prominent. A narrow, elliptical, flat inner metatarsal tubercle present. Outer metatarsal tubercle absent.

Material examined : 15 adults were collected from Cherrapunjiae, Shillong of Khiai hills, and Siju cave, Garo hills, Meghalaya.

Distribution : India : West Bengal, Meghalaya, Assam, Arunachal Pradesh, Mizoram, Tripura. Nepal; Burma; China.

Remarks : This species was originally recorded as *Polypedates afghanus* (Gunther, 1865). It was subsequently recorded from West Bengal, Meghalaya, Assam and Arunachal Pradesh (Daniel 1962, Pillai & Chanda 1979, Boulenger, 1920). This is a rare species and generally found to occur near the stream. It is mainly nocturnal species.

10. ***Amolops formosus*** (Gunther, 1875)

1875. *Polypedates formosus* Gunther, *Proc. zool. Soc.*, London : 570.

1985. *Amolops formosus Frost, Amphibian species of the world* : 455.

Diagnosis : Dorsally bright green with blackish spots on the head and body. Dorsal skin smooth. Belly granulated. A glandular fold present above the tympanum. Head slightly broader than long. Snout rounded, slightly projecting beyond mouth. Nostrils equidistant from eyes and tip of snout.

Tympanum very distinct, one-third diameter of eyes. Forelimbs very long, discs very large with prominent grooves separating upper from the lower surface. Subarticular tubercles moderate. Tibiotarsal articulation reaching beyond nostril. Toes entirely webbed. Subarticular tubercles moderate. An oval shaped inner metatarsal tubercle present. Outer metatarsal tubercle absent.

Distribution : India : Meghalaya. Nepal.

Remarks : Although this species was recorded for the first time from Meghalaya, several surveys were made in and around Meghalaya did not yield any result. Description based on (Boulenger, 1920).

Genus ***Rana*** Linnaeus, 1758

1758. *Rana* Linnaeus, *Syst. Nat.*, ed. 10 *Holmiae* : 210.

1985. *Rana* Frost, *Amphibian species of the world* : 510.

Diagnosis : Skin not smooth. Tongue free, deeply notched and bifid behind. Vomerine teeth present (rarely absent). Pupil horizontal. Tympanum distinct, sometimes hidden. Paratoid gland absent. Fingers free, toes a webbed (rarely nearly free). Terminal phalanges obtuse or T-shaped. Omosternum and sternum with a bony style.

Distribution : Cosmopolitan, except in Southern parts of South America, Australia and New Zealand.

Key to the species of ***Rana***

1. Head broader than long 2
   Head as long as broad or longer than broad 8
2. Tibiotarsal articulation reaching tip of snout or beyond 3
   Tibiotarsal articulation not reaching tip of snout 6
3. Toes fully webbed; fingers obtusely pointed, free with rudiment of web ..... *assamensis*
   Toes not fully webbed 4
4. Toes half-webbed 5
   Toes three-fourth webbed; fingers free with swollen tips ..... *laticeps*
5. Tympanum small, faintly visible, covered by the skin; inner metatarsal tubercle present, outer metatarsal tubercle absent ..... *khasiana*
   Tympanum distinct; both inner and outer metatarsal tubercle present ..... *limnocharis*
6. Toes fully webbed; tympanum distinct, more than half the diameter of eye ..... *cyanophlyctis*
   Toes half to three-fourth webbed 7
7. Toes half webbed; tympanum distinct, more than two-third the diameter of eye ..... *malabarica*
   Toes two-third webbed; tympanum distinct, less than half the diameter of eye ..... *mawlyndipi*
8. Tibiotarsal articulation reaching tip of snout or beyond tip of snout 9
   Tibiotarsal articulation not reaching tip of snout 14
9. Toes fully webbed 10
   Toes not fully webbed but three-fourth webbed; tibiotarsal articulation reaching tip of snout; inner metatarsal tubercle present, outer metatarsal tubercle absent ..... *mawphlangensis*
10. Tympanum more than half the diameter of eye 11
    Tympanum half or less than half the diameter of eye 13
11. Tips of fingers and toes with horse-shoe shaped discs separating upper from the lower surface; tympanum very distinct, two-third diameter of eye ..... *alticola*
    Tips of fingers and toes without horse-shoe shaped discs 12
12. Tympanum very distinct, nearly two-third diameter of eye; inner metatarsal tubercle present, outer metatarsal tubercle absent ..... *livida*
    Tympanum distinct, half the diameter of eye; both inner and outer metatarsal tubercles present ..... *danieli*
13. Tympanum distinct, about one-third the diameter of eye; inner metatarsal tubercle present, outer metatarsal tubercle absent ..... *gerbillus*
    Tympanum very distinct, half the diameter of eye; both inner and outer metatarsal tubercle present ..... *garoensis*

14. Toes fully webbed, except two terminal phalanges of fourth toe free; tips of fingers with small discs ..... *bilineata*

    Toes half to two-third webbed; tips of fingers with minute transverse grooves..... *leptoglossa*

11. ***Rana alticola*** Boulenger, 1882

1882. *Rana alticola* Boulenger, *Cat. Bat. Sal. Brit. Mus.* : 62.

1985. *Rana alticola* Frost, *Amphibian species of the world* : 480.

Diagnosis : Dorsally yellowish to light brown. Ventrally almost white. Skin almost smooth. Head longer than broad. Snout obtusely pointed, projecting slightly beyond mouth. Tympanum very distinct, two-third diameter of eyes. Fingers long, free with horse-shoe shaped discs separating upper from the lower surface. Tibiotarsal articulation reaching beyond tip of snout. Tips of toes with horse-shoe shaped discs separating upper from the lower surface; entirely webbed. Two phalanges of fourth toe free. Subarticular tubercles moderate and prominent. Both inner and outer metatarsal tubercles present.

Material Examined : 24 adults are available from Mylliem, Cherrapunjiae, Khasi hills and from Tura, Garo hills, Meghalaya.

Distribution : India : Meghalaya, Assam, Tripura, West Bengal, Orissa, Andamans. Sri Lanka; Nepal; China; Japan; Indonesia; Malaysia.

Remarks : This species was originally recorded from Khasi hills, Meghalaya (Boulenger, 1882). Pillai & Chanda (1979) recorded the species for the second time from Meghalaya. This is a rare species of frog and generally found to occur near the stream. Tadpoles of this frogs are more abundantly available in comparison to their adults.

12. ***Rana assamensis*** Sclater, 1892

1892. *Rana assamensis* Sclater, *Proc. zool. Soc., Lond.* : 243.

1985. *Rana assamensis* Frost, *Amphibian species of the world* : 514.

Diagnosis : Dorsally yellowish to brown. Ventral surface almost white. Skin smooth. Head broader than long. Snout pointed, projecting beyond lower jaw. Tympanum fairly distinct, half or slightly less than the diameter of eyes. Forelimbs moderately long; fingers obtusely pointed, free with rudiment of web. Hindlimbs very long. Tibiotarsal articulation reaching far beyond tip of snout. Toes with dilated tips, entirely webbed. Inner metatarsal tubercle present, outer metatarsal tubercle absent.

Material examined : No material was available during the present study, description based on literature.

Distribution : India : West Bengal (Darjeeling), Meghalaya. Nepal.

Remarks : Although this species was recorded from Khasi hills, Meghalaya, no material was available in the collection during the present study.

13. ***Rana bilineata*** Pillai & Chanda, 1981

1981. *Rana bilineata* Pillai & Chanda, *Rec. zool. Surv. India,* **79** : 163-166.

1985. *Rana bilinetata* Frost, *Amphibian species of the world* : 483.

Diagnosis : Dorsally brownish without any spot. Ventral surface almost white. Dorsal skin smooth, faintly tuberculated posteriorly. Belly, breast and throat with white subcutaneous dots. Head longer than broad. Snout rounded, projecting beyond mouth. Tympanum very distinct, more than half the diameter of eyes. Fingers fairly long, free; tips of fingers dilated into small discs. Subarticular tubercles prominent. Hindlimbs long. Tibiotarsal articulation reaching eyes. Toes entirely webbed except two terminal phalanges of fourth toe free. Tips of toes dilated into small discs. Both inner and outer metatarsal tubercles present.

Material examined : One adult frog collected from Garo hills, Meghalaya.

Distribution : India : Meghalaya.

Remarks : This species is known only from the type material collected from Garo hills, Meghalaya. During the present study several surveys were undertaken in and around Meghalaya however did not yield any result. Description based on Pillai & Chanda (1981).

14. ***Rana cyanophlyctis*** Schneider, 1799

1799. *Rana cyanophlyctis* Schneider, *Hist. Amp.,* **1** : 157.

1985. *Rana cyanophlyctis* Frost, *Amphibian species of the world* : 487.

Diagnosis : Dorsally greyish to brown, spotted or marbled with black or dark markings. Ventral surface white or pale yellowish. Dorsal skin with small tubercles and warts. Ventral surface almost smooth. Head slightly broader than long, depressed. Snout pointed, slightly projecting beyond mouth. Tympanum distinct, more than half the diameter of eyes. Nostrils equidistant from eyes and tip of snout. Fingers free, pointed. Subarticular tubercles small and prominent. Tibiotarsal articulation reaching between eyes and nostril. Toes with swollen tips, fully webbed. A small, pointed, digitiform inner metatarsal tubercle present. Outer metatarsal tubercle absent.

Material examined : 215 exs. were collected from different areas of Meghalaya during the period.

Distribution : All over India; Pakistan; Afghanistan; South Arabia and Sri Lanka.

Remarks : It is the commonest and most easily available species of the Indian frogs, inhabiting all biotopes of the country. It is almost entirely aquatic. It may be frequently found on the banks of streams or ponds throughout the year and prefers still water. It has the peculiar habit of skipping over the surface of water, this accounts for its peculiar name "Skipper frog"

15. ***Rana danieli*** Pillai & Chanda, 1977

1977. *Rana danieli* Pillai & Chanda, *J. Bombay nat. Hist. Soc.,* **74**(1) : 136-137.

1985. *Rana danieli* Frost, *Amphibian species of the world* : 488.

Diagnosis : Dorsally brown to dark-brown, occasionally with dark irregularly patches on the

dorsum. Limbs with dark cross-bars. Ventral surface almost white. Skin smooth. Head as long broad. Snout projecting beyond mouth. Nostrils slightly nearer to tip of snout than eyes. Tympanum distinct, half the diameter of eyes. Fingers free. Tips of fingers swollen into small discs. Tibiotarsal articulation reaching tip of snout or slightly beyond the snout. Toes fully webbed. Tips of toes swollen into small discs. Both inner and outer metatarsal tubercles present.

Material examined : 3 exs. collected from Mawphlong and Nongkreng, Khasi hills, Meghalaya.

Distribution : India : Meghalaya.

Remarks : This species was originally recorded from Mawphlong, Khasi hills, Meghalaya (Pillai & Chanda, 1977). It has been subsequently recorded from Assam and Manipur (Chanda, 1986). It is a rare species and generally found to occur near small stream.

16. ***Rana gerbillus*** Annandale, 1912

1912. *Rana gerbillus* Annandale, *Rec. Indian Mus.*, **8** : 10.

1985. *Rana gerbillus* Frost, *Amphibian species of the world* : 492.

Diagnosis : Dorsally grey, marbles with black. Limbs with dark brown cross-bands of irregular pattern. Skin smooth, occasionally finely granulated. Ventral surface smooth. Head as long as broad; snout rounded, porjecting slightly beyond lower jaw. Nostrils equidistant from eye and tip of snout. Tympanum distinct about one-third diameter of eyes. Fingers free with prominent horizontally grooved discs. Subarticular tubercles small but prominent. Tibiotarsal articulation reaching beyond tip of snout. Tips of toes with horizontally grooved discs which are slightly smaller than finger discs; toes fully webbed. Inner metatarsal tubercles present, outer metatarsal tubercle absent.

Material examined : 3 exs. collected from Mawphlong and Umtham, Khasi hills, Meghalaya.

Distribution : India : West Bengal (Darjeeling), Meghalaya, Assam, Arunachal Pradesh.

Remarks : This species was originally recorded from Arunachal Pradesh (Annandale, 1912). Pillai & Chanda (1979) recorded the species for the first time in Meghalaya. Chanda (1986) recorded the species for the first time in Darjeeling, West Bengal. This is a rare species and generally found to occur near the streams of the hilly regions.

17. ***Rana garoensis*** Boulenger, 1920

1920. *Rana garoensis* Boulenger, *Rec. Indian Mus.*, **20** : 170-171.

1985. *Rana garoensis* Frost, *Amphibian species of the world* : 492.

Diagnosis : Dorsally greyish brown, ventral surface white. Skin dorsally granulated. Ventral skin smooth. Head longer than broad. Snout pointed, projecting beyond mouth. Nostrils equidistant from eyes and tip of snout. Tympanum very distinct, half the diameter of eyes. Fingers free. Tips of fingers dilated into small discs, with a groove separating upper from the lower surface. First and second fingers equal in size. Subarticular tubercles moderately large, prominent. Tibiotarsal articulation reaching slightly beyond tip of snout. Toes entirely webbed. An oval shaped inner and a round outer metatarsal tubercle present.

Material examined : 2 exs. (Type) collected from Garo hills, Meghalaya.

Remarks : This species was originally described from Garo hills, Meghalaya (Boulenger, 1920). However several surveys carried subsequently in and around Meghalaya did not yield any more specimen of this species.

18. ***Rana khasiana*** (Anderson, 1871)

1871. *Pyxicephalus khasianus* Anderson, *J. Asiatic Soc. Beng.*, **40** : 23.

1985. *Rana khasiana* Frost, *Amphibian species of the world* : 498.

Diagnosis : Dorsally uniform brown. Chin, throat and legs spotted with brown. Dorsal surface smooth. Ventrally almost smooth. Head short, broader than long. Nostrils directed upwards, equidistant from eyes and tip of the snout. Tympanum small, covered by skin, faintly visible, more than half the diameter of eye. Fingers free. A shovel shaped inner metatarsal tubercle present. Outer metatarsal tubercle absent.

Distribution : India : Meghalaya.

Material examined : Material not available. Description based on literature.

19. ***Rana laticeps*** Boulenger, 1882

1882. *Rana laticeps* Boulenger, *Cat. Bat. Sal. Brit. Mus.* : 20.

1985. Rana laticeps : Frost, *Amphibian species of the world* : 498.

Diagnosis : Dorsally varying from light-brown to dark-brown, sometimes with brownish spots or marblings. Ventral surface almost white. Dorsal skin rough. Head broader than long. Snout obtusely pointed, slightly projecting beyond mouth. Nostrils nearer to tip of snout than eyes. Tympanum indistinct, two third the diameter of eyes. Fingers free with swollen tips. Toes three-fourth webbed. Subarticular tubercles moderately prominent. A narrow, oval shaped inner metatarsal tubercle present. Outer metatarsal tubercle absent.

Material examined : 15 adults are available from Mawblong, Cherrapunjiae, Barapani, Khasi hills and Tura. Garo hills, Meghalaya.

Distribution : India : West Bengal, Meghalaya, Assam. Burma. Malaysia.

Remarks : This species was originally recorded from Khasi hills, Meghalaya by Boulenger (1882). Pillai & Chanda (1979) recorded the species from Khasi hills, Meghalaya after a span of more than 70 years. This is a rare species.

20. ***Rana limnocharis*** Weighmann, 1835

1835. *Rana limnocharis* Weighmann, *Nova. Acta. Acad. Leop* : 255.

1985. *Rana limnocharis* Frost, *Amphibian species of the world :* 500.

Diagnosis : Dorsally light brown to black with distinct or variable markings on the dorsal side. Ventral surface almost white. In most cases a mid-dorsal vertical band present from snout to vent.

Limbs with complete or incomplete cross-bars. Dorsal skin rough. Ventral surface smooth. Head broader than long. Snout pointed, projecting beyond mouth. Nostrils equidistant from eye and tip of snout. Tympanum distinct, half the diameter of eye. Fore-limbs moderately long. Fingers pointed, free. Subarticular tubercles small, very prominent. Hindlimbs long. Tibiotarsal articulation reaching tip of snout. Toes pointed, half-webbed. Subarticular tubercles small, prominent. Prominent, oblong inner metatarsal tubercle and a small, rounded outer metatarsal tubercle present.

Material examined : 794 exs. collected from Shillong, Barapani, Cherrapunjiae, Mawphlong, Shillong peak, Old Barapani Road, Nongkrem, Umtyngar, Nongpoh, Umsning, Umshing, Nayabunglow, Khasi hills, and Tura, Baghmara, Cherikuty, Dainadubi, Damra, Darugiri, Phulbari, Rongtham, Songsak, Siju Cave, Garo hills, Meghalaya.

Distribution : All over India; Sri Lanka; China; Malaysia; Indonesia; Philippines.

Remarks : This is the commonest and most widely distributed of the Indian frogs and has been recorded from 2133 m. in Sikkim (Boulenger, 1920). In northeast Indian forms this species exhibits certain intraspecific variations specially in colour pattern with reference to the dorsal vertebral line which may be totally non-existent or sometimes very broad and prominent.

21. ***Rana livida*** (Blyth, 1855)

1855. *Polypedates livida* Blyth, *J. Asiat. Soc. Beng.*, **24** : 718.

1985. *Rana livida* Frost, *Amphibian species of the world* 500.

Diagnosis : Dorsal surface green to grey. Ventrally light-brown to dark-brown. Limbs with brownish cross-bands. Skin almost smooth. Head as long as broad. Nostrils much closer to tip of snout than eyes. Tympanum very distinct, depressed, nearly two-third the diameter of eye. Fore-limbs short. Fingers free, moderately large with very faint dermal border. Tips of fingers dilated into prominent rounded discs. Subarticular tubercles prominent. An oval shaped, well developed pad present on the inner side of the first finger. Hindlimbs very long. Tibiotarsal articulation reaching beyond tip of snout. Toes fully webbed. Subarticular tubercles moderately large and prominent. An oval shaped inner metatarsal tubercle present. Outer metatarsal tubercle absent.

Material examined : 19 exs. are available from Shillong, Cherrapunjiae, Barapani, Umsning and Umtyngar, Khasi hills, Meghalaya.

Distribution : India : West Bengal, Meghalaya, Assam, Manipur.

Remarks : This species was originally recorded from Burma (Byth, 1955). It has been recorded for the first time in Meghalaya (Pillai & Chanda, 1978).

22. ***Rana malabarica*** Tschudi, 1838

1838. *Rana malabarica* Tschudi, *Classif.* Batr. : 80.

1985. *Rana malabarica* Frost, *Amphibian species of the world :* 500.

Diagnosis : Yellowish to crimson with or without small black markings on the dorsum. Limbs pale brown, sometimes with dark-brown. Ventrally white to yellowish or marbled with brown. Skin

with minute granules on the dorsum. Lateral sides with small warts. Head broader than long. Snout obtusely pointed, projecting slightly beyond lower jaw. Nostril closer to tip of snout than to the eyes. Tympanum very distinct, more than two-third diameter of eye. Fingers long with prominent tips. First finger longer than second. Subarticular tubercles prominent. Hindlimbs long. Tibiotarsal articulation reaching eye. Toes half-webbed with prominent tips. Subarticular tubercles large and prominent. An oval shaped inner metatarsal tubercle and a prominent outer metatarsal tubercle present.

Material examined : 5 exs. are available from Umling, Pynursla, Barapani, Khasi hills and Dainadubi, Garo hills, Meghalaya.

Distribution : India : Assam, Meghalaya, Madhya Pradesh, Maharashtra, Kerala.

Remarks : This species was originally recorded from Kerala (Tschudi, 1938). Pillai & Chanda (1978) recorded the species for the first time from Meghalaya. The finding of this species from northeast India indicates the discontinuous distribution pattern in the subcontinent.

23. ***Rana mawphlangensis*** Pillai & Chanda, 1977

1977. *Rana mawphlangensis* Pillai & Chanda, *J. Bombay nat. Hist. Soc.*, **74**(1) : 136-140.

1985. Rana mawphlangensis Frost, *Amphibian species of the world* : 504.

Diagnosis : Dorsally bluish-black to slate coloured. Ventral surface yellowish to white. Skin smooth. Head as long as broad. Nostrils equidistant from eye and tip of snout. Tympanum distinct, more than half the diameter of eye. Fingers free, tips of fingers dilated into small discs. First finger slightly longer than second. Subarticular tubercles prominent. Hindlimbs long. Tibiotarsal articulation reaching tip of snout. Tips of toes dilated into prominent discs. Toes three-fourth webbed. Subarticular tubercles prominent. A moderately prominent inner metatarsal tubercle present. Outer metatarsal tubercle absent.

Material examined : 1 ex. collected from Mawphlong, Khasi hills, Meghalaya.

Distribution : India : Meghalaya, Manipur.

Remarks : This species was originally recorded from Mawphlong, Khasi hills, Meghalaya (Pillai & Chanda, 1977). It is a nocturnal species and found near the hill stream. It is a rare species.

24. ***Rana mawlyndipi*** Chanda, 1990

1990. *Rana mawlyndipi* Chanda, *J. Bengal nat. Hist. Soc.*, N.S. **9**(1) : 44-48.

Diagnosis : Dorsally deep-brown to blackish, with black canthal and temporal bands. Throat and ventral surface of limbs spotted or marbled with black or brown. Skin smooth. Head broader than long, slightly depressed. Snout slightly pointed, projecting beyond lower jaw. Nostrils equidistant from eyes and tip of snout. Tympanum distinct, less than half the diameter of eye. Fingers long, free. Tips of fingers dilated into small discs. First finger slightly shorter than second. Subarticular tubercles well developed. Hindlimbs long. Tibiotarsal articulation reaching nostril. Toes more than two-third webbed. Tips of toes dilated into prominent discs. Subarticular tubercles prominent and well developed. An oval shaped inner metatarsal tubercle present. Outer metatarsal tubercle absent.

Material examined : 1 ex. collected from Mawlyndeep, Khasi hills, Meghalaya.

Remarks : It is a rare species of frog and found to occur near the hill stream under the overhanging vegetation of the stream. Normally this species do not float on the surface of water like *Rana limnocharis.*

25. ***Rana leptoglossa*** (Cope, 1868)

1868. *Hylorana leptoglossa* Cope, *Proc. Ac. Philad.* : 139.

1985. *Rana leptoglossa* Frost, *Amphibian species of the world* : 499.

Diagnosis : Dorsally brown with small or large black spots or markings. Ventrally white, spotted or marbled with brown. Skin strongly granulated on the head and back often with larger warts on the sides. Ventral surface smooth. Head as long as broad. Nostrils slightly nearer to snout than eyes. Tympanum very distinct, three-fourth diameter of eye. Fingers long, free with small discs and minute transverse groove. First finger longer than second. Subarticular tubercles large and prominent. Hindlimbs long. Tibiotarsal articulation reaching eyes or between eyes and nostril. Toes half to two-third webbed with small discs and with grooves separating upper from the lower surface. Subarticular tubercles prominent. An oval shaped inner metatarsal tubercle and a round outer metatarsal tubercle present.

Material examined : Material not available for study. Description based on type.

Distribution : India : Meghalaya, Assam; Burma.

Family RHACOPHORIDAE

Diagnosis : Upper jaw toothed. Lower jaw usually toothless. Vomerine teeth present or absent. Tongue free and deeply bifurcated behind. Tympanum distinct. Intercalary cartilage present between the penultimate and terminal phalanges. Fingers minutely to fully webbed. Toes two-third to fully webbed. Tips of fingers and toes dilated into prominent discs or rounded tips. Omosternum and sternum with bony style.

Distribution : India; Sri Lanka; Burma; China; Indo-China; Malaysia; Indonesia; Philippines; Africa; Madagascar.

Remarks : A total of 10 genera have so far been recorded from the world of which, only three genera have been found to occur in Meghalaya.

Key to the genera of **RHACOPHORIDAE**

1. Vomerine teeth absent.....2
   Vomerine teeth present.....3
2. Tympanum distinct or hidden; fingers free or minutely webbed at the base; toes webbed..... .....*Philautus*
3. Vomerine teeth usually present (exceptionally absent); tips of fingers and toes dilated into regular discs; an intercalary ossicle present between penultimate and ultimate phalanges.....*Rhacophorus*
   Vomerine teeth usually present; tips of fingers and toes with circum-marginal grooves; no intercalary ossicle present between the penultimate and ultimate phalanges.....*Polypedates*

Genus ***Philautus*** Gistel, 1848

1848. *Philautus* Gistel, *Naturg. Thierr.* : 10.

1985. *Philautus* Frost, *Amphibian species of the world* : 526.

Diagnosis : Skin smooth, occasionally granulated. Vomerine teeth absent. Pupil horizontal. Tympanum distinct or hidden. Fingers free or minutely webbed at the base; toes webbed. Tips of fingers and toes dilated into swollen discs or rounded tips. Omosternum or sternum with a bony style.

Distribution : India; Sri Lanka; Burma; Indo-China; Malaysia; Indonesia; Philippines.

Remarks : A total of 85 species of this genus have so far been recorded from the world of which only five species have been recorded from Meghalaya.

Key to the species of ***Philautus***

1. Tympanum fairly distinct or distinct 2
   Tympanum indistinct or hidden 4
2. Tympanum, distinct one-third the diameter of eye ..... *garo*
   Tympanum fairly distinct 3
3. Tibiotarsal articulation reaching tip of snout ..... *cherrapunjiae*
   Tibiotarsal articulation reaching posterior corner of eye ..... *shillongensis*
4. Tympanum hidden; tibiotarsal articulation reaching tip of snout ..... *kempii*
   Tympanum indistinct; tibiotarsal articulation reaching anterior corner of eye ..... *andersoni*

26. ***Philautus andersoni*** (Ahl., 1927)

1927. *Philautus andersoni* Ahl., *Sitzungsber. Ges. Naturforsch. Freunde.*

1985. *Philautus andersoni* Frost, *Amphibian species of the world* : 52.

Diagnosis : Dorsally brown to olive, ventrally white to yellowish in colour. Skin smooth. Lateral parts of body and thigh with small tubercles. Head broader than long. Snout moderately long. Nostrils closer to tip of snout than eyes. Tympanum indistinct, more than one-third the diameter of eye. Fingers free with swollen tips. First finger shorter than second. Subarticular tubercles small, indistinct. Tibiotarsal articulation reaching anterior corner of eyes. Toes with swollen tips, webbed at the base. Subarticular tubercles small, indistinct. Indistinct inner and outer metatarsal tubercles present.

Material examined : 26 exs. are available from Shillong, Barapani, Umtham, Khasi hills and Garampani, Jaintia hills, Meghalaya.

Distribution : India : Meghalaya, Arunachal Pradesh. Burma.

Remarks : Since the description of this species by Ahl (1927) it remained rare as no further record could be noted till Pillai & Chanda (1979) reported this species from a series of collection from Meghalaya and Arunachal Pradesh, northeast India.

27. ***Philautus cherrapunjiae*** Roonwal & Kripalani, 1961

1961. *Philautus cherrapunjiae* Roonwal & Kripalani, *Rec. Indian Mus.*, **59**(1&2) : 325-373.

1985. Philautus cherrapunjiae Frost, *Amphibian species of the world* : 528.

Diagnosis : Dorsally pale to dark green. Ventrally almost white. Skin smooth, sometimes with faint folds. Abdomen faintly granulated on the ventral side. Head broader than long. Nostrils much closer to tip of snout than eyes. Tympanum fairly distinct, half the diameter of eyes. Fingers nearly half-webbed. First finger slightly shorter than second. Tips of fingers dilated into prominent semicircular discs. Subarticular tubercles small and prominent. Hindlimbs long; tibiotarsal articulation reaching tip of snout. Toes three-fourth webbed; tips of toes dilated into subround discs. Subarticular tubercles moderately developed. Both inner and outer metatarsal tubercles present.

Material examined : 59 exs are available from Cherrapunjiae, Mawblong, Pynursla, Khasi hills, Meghalaya.

Distribution : India : Meghalaya.

Remarks : This species was not reported since Roonwal & Kripalani (1961) described it from Cherrapunjiae, Khasi hills, Meghalaya. This species is purely endemic to Meghalaya in the Indian subcontinent.

28. ***Philautus garo***(Boulenger, 1919)

1919. *Ixalus garo* Boulenger, *Rec. Indian Mus.*, **15** : 207.

1985. *Philautus garo* Frost, *Amphibian species of the world* : 528.

Diagnosis : Dorsally dark brown to black, ventrally greyish to white. Limbs with irregular dark-brown patches. Skin smooth. Head broader than long, nostrils equidistant from eyes and tip of snout; tympanum distinct, one-third diameter of eyes. Fingers free; first finger shorter than second; tips of fingers dilated into prominent discs which are as large as tympanum; subarticular tubercles moderately developed. Tibiotarsal articulation reaching eyes. Toes webbed at the base; tips of toes dilated into rounded discs as large as finger tips. Both inner and outer metatarsal tubercles absent.

Material examined : One adult material is available from Tura, Garo hills, Meghalaya.

Distribution : India : Garo hills, Meghalaya.

Remarks : This species was originally recorded from Tura, Garo hills, Meghalaya (Boulenger, 1919) and is known only from the type. During the present study intensive collection in and the type locality did not yield any further material. It is endemic to Meghalaya in the Indian subcontinent.

29. ***Philautus kempii*** (Boulenger, 1919)

1919. *Ixalus kempii* Boulenger, *Rec. Indian Mus.*, **16** : 208.

1985. *Philautus kempii* Frost, *Amphibian species of the world* : 529.

Diagnosis : Dorsally grey to brown. Limbs with irregular dark cross-bars; throat and belly almost white, spotted or marbled with brown. Dorsal skin tuberculated, ventrally smooth. Head broader than long; nostrils equidistant from eyes and tip of snout. Tympanum hidden. Fingers free; first finger

shorter than second; tips of fingers dilated into prominent discs; subarticular tubercles indistinct. Tibiotarsal articulation reaching tip of snout; toes with prominent discs, webbed at the base. Both inner and outer metatarsal tubercles absent.

Material examined : One adult material is available from Tura, Garo hills, Meghalaya.

Distribution : India : Meghalaya.

Remarks : This species was originally recorded from Garo hills, Meghalaya(Boulenger 1919) and is known only from the type.

30. ***Philautus shillongensis*** Pillai & Chanda, 1973

1973. *Philautus shillongensis* Pillai & Chanda, *Proc. Indian Acd. Sci.*, **70**(8) Sec. B(1) : 30-36.

1985. *Philautus shillongensis* Frost, *Amphibian species of the world* : 532.

Diagnosis : Dorsal surface grey to black, ventrally almost white. Skin almost smooth; belly with scattered warts and tubercles. Head slightly broader than long; nostrils much closer to tip of snout than eyes; Tympanum fairly distinct, less than half the diameter of eyes. Fingers free with intercalary ossicles; first finger shorter than second; subarticular tubercles indistinct. Tibiotarsal articulation reaching posterior corner of eyes. Toes free with small rounded discs; subarticular tubercles moderately prominent. An indistinct inner metatarsal tubercle present, outer metatarsal tubercle absent.

Material examined : 285 exs. are available from various localities in and around Shillong, Khasi hills, Meghalaya.

Distribution : India : Meghalaya.

Remarks : This species was originally recorded from Shillong, Khasi hills, Meghalaya (Pillai & Chanda, 1973). During the present study a number of examples were collected throughout the year from the different localities of Shillong. It is an endemic species to Meghalaya of the Indian subcontinent.

Genus ***Rhacophorus*** Kuhl & V. Hass, 1827

1827. *Rhacophorus* Kuhl & V. Hass, *Alg. Konst-en Latterbode* : 104.

1985. *Rhacophorus* Frost, *Amphibian species of the world* : 542.

Diagnosis : Skin smooth, sometimes tuberculated. Tongue free and deeply notched behind. Vomerine teeth usually present (exceptionally absent). Pupil horizontal. Tympanum generally distinct. Fingers free or webbed. Toes webbed.

Distribution : India; Burma; China; Japan; Indo-China; Malaysia; Indonesia; Philippines; Madagascar.

Remarks : A total of 95 species have been included in this genus from the world, of which two species have been found to occur in Meghalaya.

Key to the species of ***Rhacophorus***

Tibiotarsal articulation reaching anterior corner of eyes; nostrils nearer to tip of snout than eyes;

tympanum half the diameter of eyes ..... *maximus* Gunther

Tibiotarsal articulation reaching posterior corner of eyes; nostrils equidistant from eyes and tip of snout; tympanum two-third the diameters of eyes..... *bipunctatus* Ahl.

31. ***Rhacophorus bipunctatus*** Ahl., 1927

1927. *Rhacophorus bipunctatus* Ahl., *Sitzungaber Ges. Naturforsch. Freunde,* Berlin : 146.

1985. *Rhacophorus bipunctatus* Frost, *Amphibian species of the world : 543.*

Diagnosis : Dorsally green to olive, ventrally whitish. Dorsum slate coloured. Prominent black spots present on the flank which are variable in nature. Sometimes two large spots occur on the right side followed by three smaller spots on the left. Sometimes two prominent spots present on both sides. Dorsal skin smooth. Belly, lateral sides of the body and thighs finely granulated. Head broader than long. Snout pointed, projecting beyond lower jaw; nostrils equidistant from eyes and tip of snout. Tympanum distinct, two-third the diameter of eyes. Fingers with prominent discs and webbed to discs with distinct circum-marginal grooves. Tibiotarsal articulation reaching posterior corner of eyes; toes fully and broadly webbed. Tips of toes with large discs with circum-marginal grooves. A cartilagenous phalange present between penultimate phalange of their toes. Subarticular tubercles prominent. A small inner metatarsal tubercle present, outer metatarsal tubercle absent. A cutaneous flap present above the vent and along the hindlimbs.

Material examined : 13 exs. are available from Shillong, Pynursla, Umroi, Thadlaskein, Khasi hills, Meghalaya.

Distribution : India : Meghalaya, Arunachal Pradesh, Manipur, Nagaland, Tripura. Indonesia.

Remarks : This species was known from Arunachal Pradesh and Meghalaya (Annandale, 1912, Pillai & Chanda 1979). Chanda (1986) recorded the species for the second time in Meghalaya. During the present study it has been recorded for the third time in Meghalaya.

32. ***Rhacophorus maximus*** Gunther, 1858

1858. *Rhacophorus maximus* Gunther, *Cat. Bat. Sal.* : 83.

1985. *Rhacophorus maximus* Frost, *Amphibian species of the world :* 545.

Diagnosis : Dorsally dark to pale green. Ventral surface including limbs and belly yellowish. Skin smooth. Ventral and lateral sides of the body minutely granulated. Head broader than long. Snout slightly projecting beyond lower jaw. Tympanum distinct, half the diameter of eyes. Nostrils nearer to tip of snout than eyes. Fingers fully webbed with prominent well developed discs; first finger shorter than second; subarticular tubercles prominent. Toes fully and broadly webbed with prominent well developed discs and with distinct circum-marginal grooves; subarticular tubercles prominent. Inner metatarsal tubercle present, outer metatarsal tubercle absent.

Material examined : 2 exs. are available from Shillong, Barapani, Kasi hills and Tura, Garo hills, Meghalaya.

Distribution : India : Meghalaya, Assam, Arunachal Pradesh, Nagaland, Manipur, Mizoram, West

Bengal; Malaysia; Indonesia.

Remarks : This species was originally recorded from Borneo. Pillai & Chanda (1979) recorded the species for the first time in Meghalaya. In India this species appears to be restricted to northeast India and West Bengal.

Genus ***Polypedates*** Tschudi, 1838

1838. *Polypedates* Tschudi, *Classif. Batr.* : 34.

1985. *Polypedates* Frost, *Amphibian species of the world* : 540.

Diagnosis : Skin smooth, sometimes tuberculated. Fingers free or webbed. Toes webbed. Circum-marginal grooves present on tips of fingers and toes. Tympanum generally distinct. Vomerine teeth present.

Distribution : Throughout tropical Asia; Japan; China; Philippines; Java; Borneo.

33. ***Polypedates leucomystax*** Gravenhorst, 1829

1829. *Polypedates leucomystax* Gravenhorst, *Delic. Mus. zool. Vratislav.* 1:26.

1985. *Polypedates leucomystax* Frost, *Amphibian species of the world* : 541.

Diagnosis : Head broader than long. Tympanum very distinct. Fingers with rudiment of web and well developed discs with circum-marginal grooves. Tibiotarsal articulation reaching anterior corner of eyes. Tips of toes dilated into well developed disc with circum-marginal grooves. Toes two-third webbed. A small inner metatarsal tubercle present. Outer metatarsal tubercle absent.

Dsitribution : India : Arunachal Pradesh, Assam, Sikkim, West Bengal; Southern China to Philippines.

Remarks : It is a nocturnal species and occasionally found inside the room at night specially during the monsoon. It prefers dark and moist atmosphere of lavatory and also found under the leaves of certain plants and roofs of thatched village huts.

DISCUSSION

The present study has been undertaken to furnish an up to date account of the known species of amphibians from Meghalaya. During the course of present study collections were made from all the five districts of Meghalaya.

A total of 54 species under 6 families and 14 genera have been found to occur in different states of northeast India (Chanda, in press) of which 33 species have been found to occur in Meghalaya. This study clearly indicates that amphibian fauna of Meghalaya can be considered as rich when compared with the amphibian fauna of northeast India.

It is observed that representatives from all six families of India amphibians are also available in the present study. A total of 14 genera occurring in northeast India of which only one genus *Bufoides* Pillai & Yazdani is restricted to Meghalaya. Among the various localities of Meghalaya, at least two,

Mawphlang (alt. 1050 m) and Cherrapunjiae (alt. 1500 m) of Khasi hills can be specially mentioned, as they represent type locality for a number of new species and this may probably be due to most congenial habitat condition and less interference from human agencies in these locations. Both these localities surely yield more species.

The commonest species in this state appear to be *Rana cyanophlyctis* and *Rana limnocharis*. Both of these are widely distributed throughout the Indian region. Besides, both intraspecific as well as interspecific variations have been observed in a number of material of these species. The colour pattern of *R. limnocharis* shows considerable variations specially with regard to the dorsal vertebral line which is sometime very prominent and broad and in some cases it may be totally absent. Intraspecific variations have been observed in *R. cyanophlyctis* from Khasi hills, and a few of them appear "Toad like" (Pillai & Chanda, 1979).

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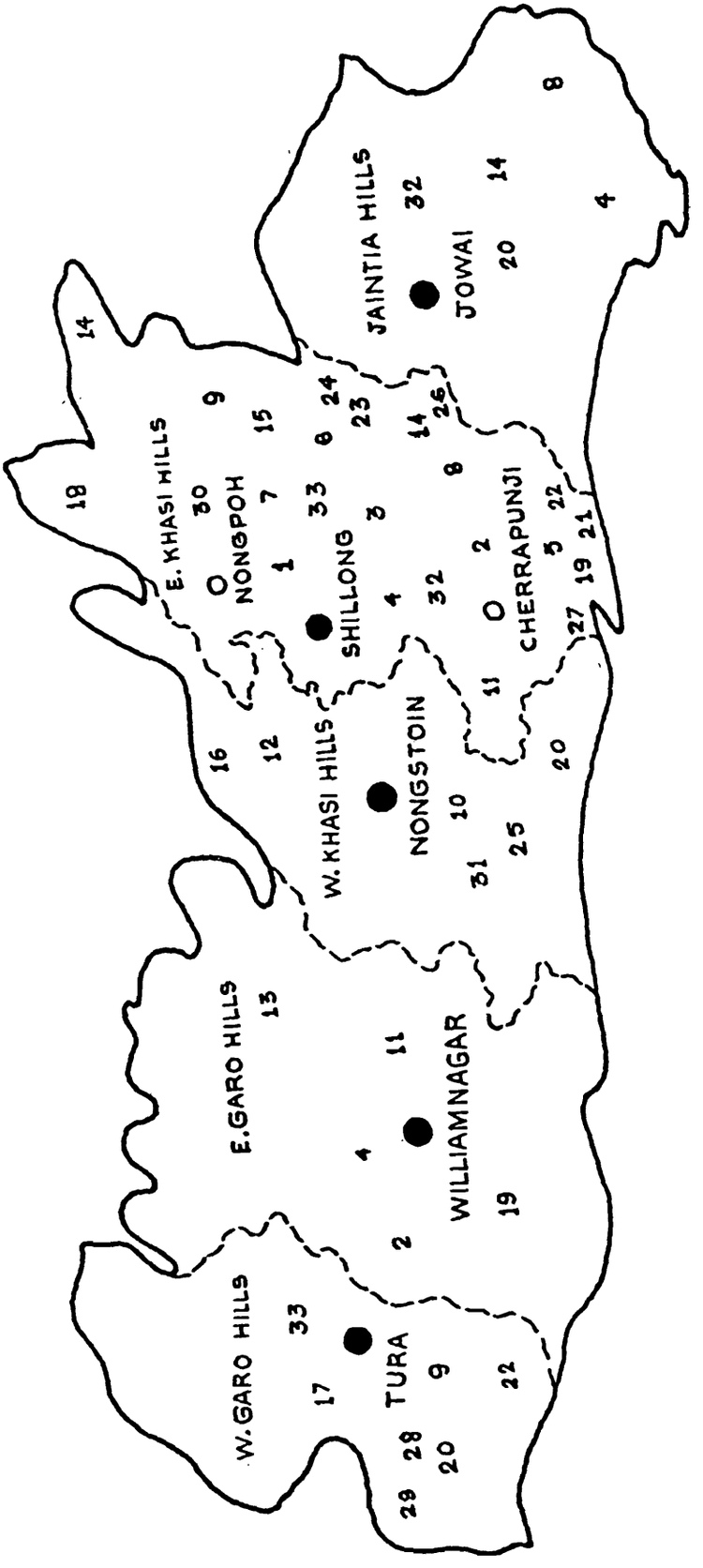
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Explanation to map on page 482

Scutiger sikkimensis 1; *Megophrys parva* 2; *Bufo himalayanus* 3; *Bufo melanestictus* 4; *Bufoides meghalayana* 5; *Hyla annectens* 6; *Microhyla berdmorei* 7; *Microhyla ornata* 8; *Amolops afghanus* 9; *Amolops formosus* 10; *Rana alticola* 11; *Rana assamensis* 12; *Rana bilineata* 13; *Rana cyanophlyctis* 14; *Rana danieli* 15; *Rana gerbillus* 16; *Rana gareensis* 17; *Rana khasiana* 18; *Rana laticeps* 19; *Rana limnocharis* 20; *Rana livida* 21; *Rana malabarica* 22; *Rana mawphlangensis* 23; *Rana mawlyndipi* 24; *Rana leptoglossa* 25; *Philautus andersonii* 26; *Philautus cherrapunjiae* 27; *Philautus garo* 28; *Philautus kempiae* 29; *Philaut us shillongensis* 30; *Rhacophorus bipunctatus* 31; *Rhacophorus maximus* 32; *Polypedates leucemystax* 33.



DISTRIBUTION MAP OF AMPHIBIAN FAUNA OF MEGHALAYA

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PISCES

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Meghalaya, one of the autonomous hill state of North Eastern India lies in between 25° 26° N. Latitude and 90° - 92° 45' E. Longitude. The state is physiographically divisible into Eastern Meghalaya (Jaintia hills) Central Meghalaya (Khasi hills) and Western Meghalaya (Garo hills). There are seven districts : (1) East Khasi hills, (2) West Khasi hills, (3) Ri Bhoi, (4) East Garo hills, (5) West Garo hills, (6) South Garo hills and (7) Jaintia hills.

Unlike most of the hill states of North East India, Meghalaya exhibits twin drainage system namely the Brahmaputra in the north and Barak in the south. The topography of the region and its watershed pattern afford a lucrative field for the ichthyological investigations of the state which interestingly has been left unattended so far in real perspectives. the detailed observations meticulously analysed in the present chapter, portray a coherent picture of the ichthyofauna of the state and their distributional trend in the region.

Although the state, with large number of tributaries and other water-bodies is of immense ichthyological importance, it is surprising to note that no elaborate attempts have so far been made to venture into this important field of study; though Hora (1922, '24), Yazdani (1972, '77) Yazdani and Talukdar (1975), Pillai and Yazdani (1974, '77) and Dey (1973, '77) had made some casual studies on the Fishes of Meghalaya.

With significant development in the science of fisheries throughout the World, the importance of fisheries education in India has been of late realised, while the state of Meghalaya is still far behind in the present field, in comparison to the rest of the country.

Approximately 235 freshwater species (Jayaram, 1981) of fishes have so far been reported from N.E. India. This is almost 29.16% of the total freshwater species reported so far from India (Approx. 806 spp., Talwar and Jhingran, '91) and only 3.43% of the total freshwater species reported from the World (approx. 6850 spp. Nelson, 1984).

A total of 152 species of fishes recorded and reported so far from Meghalaya have been included in this chapter.

GENERAL MORPHOLOGY WITH COLLECTION AND PRESERVATION ACCOUNT

Fishes are finned, red-blooded, back-boned animals that live in water and breathe by means of gills. Its body is generally covered with scales and it propels itself by the flexible movements of its body, aided by fins, which are the balancing organs.

Fishes have two sets of paired fins, the pectoral and the pelvic or ventral and three unpaired fins, the dorsal, the caudal and the anal. Paired fins are supported by girdles or arches whereas median fins are supported by a series of simple skeletal rays. The dorsal fin which was originally a continuous one, has broken up into an anterior half and a posterior half. In most of the Cyprinids only anterior half persist. In Siluroid fishes posterior half persist as adipose tissues only, whereas in Perciform fishes both the halves are present.

There are scaleless fishes also. Scalelessness is the secondary degenerate character which has come across through evolutionary process for coping with the unfavourable environmental condition.

Swimming is characteristic of all fishes. Fishes do not see very well, partly because of their eye structure and partly because of lack of visibility. However, they have a well developed sense of balance and taste. Fishes can hear, they are sensitive to vibration, currents and change in temperature and pressure. There are some sensory organs called barbels which are present in snout region.

COLLECTION :

Different fishing gears are used in Meghalaya for different types of water-bodies. In deep waters, Angling and Castnet are the major fishing gears operated. Angling is operated by two processes; single rod and line (in Khasi it is known as *Khwai pyndem)* and by ropeway method. In ropeway method two persons are required for angling, it can be operated only where breadth of the river is less. Two persons usually stand on opposite banks of the river and angling is done by two rods but with single line and bait.

For shallow water fishing, different types of scoop nets are used. These are usually made up of bamboos, canes, strings and nylon nets and are of different shape and sizes. Accordingly they are called as *Tynsong, Kriah, Bneid and Shrip* in Khasi (Fig. 1).

PRESERVATION :

Fishes are generally preserved best in formalin solution (10%) though it can also be preserved in rectified spirit (90% alcohol). Large fishes should be preserved in the solution after making a narrow cut in the abdominal wall while the small fishes should be immersed completely in the solution.

HOW TO IDENTIFY A FISH :

Fishes are perhaps more difficult to identify than other backboned animals. Accurate identification depends on a careful study of the fishes, with attention to the structure of fins, number of finrays or spines, number of rows of scales etc. For such identification a fresh or preserved specimen is essential. With the help of key characters used in the chapter, fishes can be identified. Detailed identification of fishes depends on characteristics which may look minor and unimportant to the uninitiated.

Fishes are measured with fine pointed dividers. For accurate readings, a stainless steel ruler with measurements to millimeter is recommended. The diagrammatic representation of the various body measurements of a fish is shown in Figure .2. All the paired and median fins in teleosts have long, mobile filament like prolongations called rays. Fins generally contains unbranched and branched rays.

Unbranched ray may be simple, hard or spinous (Fig. 3). In meristic data of a fish, number of rays in paired and median fins, lateral line scales, predorsal scales etc. used to be described. It includes number of rays in Dorsal (D), Pectoral (P), Pelvic (V), Anal (A) and Caudal (C) fins; lateral line scales (L.l.) counted as number of scales along lateral line (Perforated or non-perforated). Lateral transverse scales (L.t.r.) counted as number of scales from back to lateral line and from lateral line to Pelvic fin base and Predorsal scales counted as number of scales from origin of dorsal fin to the occiput. In scaleless fishes only fin formula used to be described. The presence or absence of barbels and their length is also important for identifying a fish.

SYSTEMATIC ACCOUNT OF FISHES

152 species of fishes described in this chapter belongs to 74 genera under 29 families and 8 orders. The Phylogenetic Classification is followed after Nelson (1984). The generic and specific names have been spelled after Talwar and Jhingran (1991). Key characters for identification of Order, Family, Genus and Species have only been described. Characters for Sub-Class, Sub-Orders, or Sub-Family are not included in the key (except Order Perciformes which is a diversified group). However, in Systematic list these are mentioned. Where only one family, one genus or one species is represented, the diagnostic characters only are mentioned.

The local name in Khasi is given with each species wherever available.

Under each genus and species, reference have been cited for original description and most recent ones. Only general meristic data is given for each species; where variations are remarkable for Meghalayan population, it is mentioned in remark column.

Roman figure and number in fin formula indicates unbranched (spinous or weak) and branched rays respectively. Locality of distribution within Meghalaya and elsewhere and general remarks have been given under each species. Minimum and Maximum length recorded and reported so far for each species have been given.

Geographical distribution of different genera within Meghalaya covered in this chapter have been shown with the help of Meghalaya maps.

SYSTEMATIC LIST IS AS FOLLOWS :

Grade PISCES

Class OSTEICHTHYES

Sub-class ACTINOPTERYGII

Order OSTEOGLOSSIFORMES

Sub-order NOTOPTEROIDEI

Family NOTOPTERIDAE

1. *Notopterus chitala* (Hamilton-Buchanan)
2. *Notopterus notopterus* (Pallas)

Order CLUPEIFORMES

Family CLUPEIDAE

Sub-Family ALOSINAE

3. *Gudusia chapra* (Hamilton-Buchanan)

Family ENGRAULIDAE

4. *Setipinna phasa* (Hamilton-Buchnan)

Order CYPRINIFORMES

Family CYPRINIDAE

Sub-Family CYPRININAE

5. *Catla catla* (Hamilton-Buchanan)
6. *Chagunius chagunio* (Hamilton-Buchanan)
7. *Cirrhinus mrigala* (Hamilton-Buchanan)
8. *Cirrhinus reba* (Hamilton-Buchanan)
9. *Cyprinus carpio* Linnaeus

   var. *communis (Linnaeus)*

   var. *specularis* (Lacepede)
10. *Labeo bata* (Hamilton-Buchanan)
11. *Labeo boga* (Hamilton-Buchanan)
12. *Labeo calbasu* (Hamilton-Buchanan)
13. *Labeo dero* (Hamilton-Buchanan)
14. *Labeo gonius* (Hamilton-Buchanan)
15. *Labeo nandina* (Hamilton-Buchanan)
16. *Labeo pangusia* (Hamilton-Buchanan)
17. *Labeo rohita* (Hamilton-Buchanan)
18. *Neolissocheilus hexagonolepsis* (McClelland)
19. *Neolissocheilus hexastichus* (McClelland)
20. *Osteobrama cotio cotio* (Hamilton-Buchanan)
21. *Puntius chola* (Hamilton-Buchanan)
22. *Puntius clavatus* (McClelland)
23. *Puntius conchonius* (Hamilton-Buchanan)
24. *Puntius gelius* (Hamilton-Buchanan)
25. *Puntius phutunio* (Hamilton-Buchanan)

26. *Puntius sarana sarana* (Hamilton-Buchanan)
27. *Puntius shylynius* Yazdani and Talukdar
28. *Puntius sophore* (Hamilton-Buchanan)
29. *Puntius terio* (Hamilton-Buchanan)
30. *Puntius ticto* (Hamilton-Buchanan)
31. *Tor chelynoides* (McClelland)
32. *Tor putitora* (Hamilton-Buchanan)
33. *Tor tor* (Hamilton-Buchanan)

Sub-Family CULTRINAE

34. *Chela cachius* (Hamilton-Buchanan)
35. *Chela laubuca* (Hamilton-Buchanan)
36. *Salmostoma bacaila* (Hamilton-Buchanan)
37. *Salmostoma phulo* (Hamilton-Buchanan)
38. *Securicula gora* (Hamilton-Buchanan)

Sub-Family RASBORINAE

39. *Amblypharyngodon mola* (Hamilton-Buchanan)
40. *Barilius barila* (Hamilton-Buchanan)
41. *Barilius barna* (Hamilton-Buchanan)
42. *Barilius bendelisis* (Hamilton-Buchanan)
43. *Barilius shacra* (Hamilton-Buchanan)
44. *Barilius tileo* (Hamilton-Buchanan)
45. *Barilius vagra* (Hamilton-Buchanan)
46. *Bengala elanga* (Hamilton-Buchanan)
47. *Brachydanio rerio* (Hamilton-Buchanan)
48. *Danio aequipinnatus* (McClelland)
49. *Danio dangila* (Hamilton-Buchanan)
50. *Danio devario* (Hamilton-Buchanan)
51. *Esomus danricus* (Hamilton-Buchanan)
52. *Parluciosoma daniconius* (Hamilton-Buchanan)
53. *Raiamas bola* (Hamilton-Buchanan)
54. *Rasbora rasbora* (Hamilton-Buchanan)

Sub-Family GARRINAE

55. *Crossocheilus latius latius* (Hamilton-Buchanan)
56. *Garra annandalei* Hora
57. *Garra gotyla gotyla* (Gray)
58. *Garra kempi* Hora
59. *Garra lamta* (Hamilton-Buchanan)
60. *Garra lissorhynchus* (McClelland)
61. *Garra mcclellandi* (Jerdon)
62. *Garra naganensis* Hora
63. *Garra nasuta* (McClelland)
64. *Garra rupecula* (McClelland)

Family PSILORHYNCHIDAE

65. *Psilorhynchus balitora* (Hamilton-Buchanan)
66. *Psilorhynchus homaloptera* Hora and Mukherji
67. *Psilorhynchus sucatio* (Hamilton-Buchanan)

Family BALITORIDAE

Sub-family BALITORINAE

68. *Balitora brucei* (Gray)

Sub-Family NEMACHEILINAE

69. *Aborichthys elongatus* Hora
70. *Aborichthys garoensis* Hora
71. *Aborichthys kempi* Chaudhuri
72. *Nemacheilus beavani* Gunther
73. *Nemachilus botia* (Hamilton-Buchanan)
74. *Nemacheilus corica* (Hamilton-Buchanan)
75. *Nemacheilus devdevi* Hora
76. *Nemacheilus elongatus* (Sen and Nalbant)
77. *Nemacheilus multifasciatus* Day
78. *Nemacheilus reticulofasciatus* (Singh and Banarescu)
79. *Nemacheilus savona* (Hamilton-Buchanan)
80. *Nemacheilus scaturigina* (McClelland)
81. *Nemacheilus sijuensis* (Menon)
82. *Nemacheilus sikmaiensis* Hora

Family COBITIDAE

Sub-Family COBITINAE

83. *Lepidocephalus annandalei* (Chaudhuri)
84. *Lepidocephalus berdmorei* (Blyth)
85. *Lepidocephalus caudofurcatus* Tilak and Hussain
86. *Lepidocephalus guntea* (Hamilton-Buchanan)
87. *Lepidocephalus irrorata* Hora
88. *Pangio pangia* (Hamilton-Buchanan)
89. *Somileptes gongota* (Hamilton-Buchanan)

Sub-Family BOTIINAE

90. *Botia dario* (Hamilton-Buchanan)
91. *Botia histrionica* Blyth
92. *Botia lohachata* Chaudhuri
93. *Botia rostrata* Gunther

Order SILURIFORMES

Family BAGRIDAE

94. *Aorichthys seenghala* (Sykes)
95. *Batasio batasio* (Hamilton-Buchanan)
96. *Batasio tengana* (Hamilton-Buchanan)
97. *Mystus bleekeri* (Day)
98. *Mystus cavasius* (Hamilton-Buchanan)
99. *Mystus montanus* (Jerdon)
100. *Mystus vittatus* (Block)
101. *Rama chandramara* (Hamilton-Buchanan)

Family SILURIDAE

102. *Ompok bimaculatus* (Bloch)
103. *Ompok pabda* (Hamilton-Buchanan)
104. *Ompok pabo* (Hamilton-Buchanan)
105. *Wallago attu* (Schneider)

Family SCHILBEIDAE

Sub-Family AILIINAE

106. *Ailia coila* (Hamilton-Buchanan)

107. *Clupisoma garua* (Hamilton-Buchanan)
108. *Eutropiichthys murius* (Hamilton-Buchanan)
109. *Eutropiichthys vacha* (Hamilton-Buchanan)
110. *Pseudeutropius atherinoides* (Bloch)

Family AMBLYCIPITIDAE

111. *Amblyceps mangois* (Hamilton-Buchanan)
112. *Bagarius bagarius* (Hamilton-Buchanan)
113. *Conta conta* (Hamilton-Buchanan)
114. *Gagata cenia* (Hamilton-Buchanan)
115. *Glyptothorax* cavia (Hamilton-Buchanan)
116. *Glyptothorax striatus* (McClelland)
117. *Glyptothorax telchitta* (Hamilton-Buchanan)
118. *Hara hara* (Hamilton-Buchanan)
119. *Laguvia shawi* Hora
120. *Nangra viridescens* (Hamilton-Buchanan)
121. *Pseudecheneis sulcatus* (McClelland)

Family CLARIIDAE

122. *Clarias batrachus* (Linnaeus)

Family HETEROPNEUSTIDAE

123. *Heteropneustes fossilis* (Bloch)

Family CHACIDAE

124. *Chaca chaca* (Hamilton-Buchanan)

Family OLYRIDAE

125. *Olyra horai* (Prashad and Mukherji)
126. *Olyra longicaudata* McClelland

Order CYPRINODONTIFORMES

Sub-order EXOCOETOIDEI

Family BELONIDAE

127. *Xenentodon cancila* (Hamilton-Buchanan)

Sub-order CYPRINODONTOIDEI

Family APLOCHEILIDAE

128. *Aplocheilus panchax* (Hamilton-Buchanan)

Order SYNBRANCHIFORMES

Family SYNBRANCHIDAE

129. *Monopterus (Amphipnous) cuchia* (Hamilton-Buchanan)

Order PERCIFORMES

Sub-Order PERCOIDEI

Family AMBASSIDAE

130. *Chanda namae* Hamilton-Buchanan

131. *Pseudambassis baculis* (Hamilton-Buchanan)

132. *Pseudambassis ranga* (Hamilton-Buchanan)

Family NANDIDAE

Sub-Family NANDINAE

133. *Nandus nandus* (Hamilton-Buchanan)

Sub-Family BADINAE

134. *Badis badis* (Hamilton-Buchanan)

Sub-Order MUGILOIDEI

Family MUGILIDAE

135. *Rhinomugil corsula* (Hamilton-Buchanan)

136. *Sicamugil cascasia* (Hamilton-Buchanan)

Sub-Order GOBIOIDEI

Family GOBIIDAE

Sub-Family GOBIINAE

137. *Glossogobius giuris* (Hamilton-Buchanan)

Sub-Order ANABANTOIDEI

Family ANABANTIDAE

138. *Anabas testudineus* (Bloch)

Family BELONTIIDAE

Sub-Family TRICHOGASTERINAE

139. *Colisa fasciatus* (Schneider)

140. *Colisa sota* (Hamilton-Buchanan)

Sub-Order CHANNOIDEI

Family CHANNIDAE

141. *Channa barca* (Hamilton-Buchanan)

142. *Channa marulius* (Hamilton-Buchanan)

143. *Channa orientalis* Bloch and Schneider

144. *Channa punctatus* (Bloch)

145. *Channa stewartii* (Playfair)

146. *Channa striatus* (Bloch)

Sub-Order MASTACEMBELOIDEI

Family MASTACEMBELIDAE

147. *Macrognathus aral* (Bloch and Schneider)

148. *Macrognathus pancalus* Hamilton-Buchanan

149. *Mastacembelus armatus* (Lacepede)

Family CHAUDHURIIDAE

150. *Chaudhuria indica* (Yazdani)

151. *Chaudhuria khajuriai* (Talwar, Yazdani and Kundu)

Order TETRAODONTIFORMES

Family TETRAODONTIDAE

152. *Tetraodon cutcutia* Hamilton-Buchanan

Key to the Orders

1. Body elongated, more or less cylindrical, eel-like..... 2

   Body not elongated, fusiform, compressed..... 3

2. Single gill opening on ventral surface as a transverse or round or moderately wide silt. Pectoral fin absent..... ***Synbranchiformes***

   Two gill openings, latero-ventral slits with membrances, Pectoral fins present..... ***Perciformes*** (Sub ord. Mastacembeloidei)

3. Body short, rounded. Bones of upper and lower jaw in the form of a beak having a cutting edge and covered with a layer of ivory-like substance..... ***Tetraodontiformes***

   Body fusiform. Bones of upper and lower jaw normal without any modification 4

4. Body without scales, either smooth or covered with osseous plates or with scattered tubercles. Pectoral fin with outermost ray modified into osseous spine or thick ray..... ***Siluriformes***

   Body generally with scales, rarely scaleless but never with bony plates. Pectoral fins without any osseous spine..... 5

5. Abdominal edge keeled with double or single serratious 6

   Abdominal edge smooth, round..... 7

6. Abdomen with double serratious; Lateral line present. Anal fin very long, confluent with reduced Caudal fin; pelvic fin rudimentary.....***Osteoglossiformes***

   Abdomen with single serrations; Lateral line absent. Anal fin moderate, not confluent with caudal. Pelvic fin not rudimentary..... ***Clupeiformes***

7. Pelvic fins inserted in the abdominal region. Supra branchial organ absent. Mostly a single dorsal fin..... 8

   Pelvic fins inserted in the thoracic region. Supra branchial organ generally present. Dorsal fin single or double..... 9

8. Paried and median fins are devoid of strong spines. Scales on head and body. Jaws with teeth..... .....***Cyprinodontiformes***

   Paired and median fins are devoid of strong spines. Head scaleless, no teeth on jaws..... .....***Cypriniformes***

9. Single dorsal and anal fin long, without spines. Supra-branchial organ present. Scales generally cycloid.....***Perciformes*** (Sub order : Channoidei)

   Mostly dorsal fin in two parts, continuous or separate; one spiny another with rays. Scales ctenoid.....***Perciformes***

Diagnostic characters of Family of Order Osteoglossiformes

Body broad, laterally compressed. Abdomen serrated before pelvic fins; dorsal profile slightly or highly convex. Eyes large, superior. Maxilla extends to below middle of orbit. Single dorsal fin small belonging to the caudal portion of vertebral column..... ***Notopteridae***

Key to the Families of Order Clupeiformes

1. Usually minute teeth in jaws or absent; dorsal fin origin usually well in front of anal fin..... 2

2. Snout projecting in front of lower jaw; maxilla reaching well behind eye..... ***Engraulidae***

   Snout not projecting in front of lower jaw; maxilla not reaching behind eye..... ***Clupeidae***

Key to the Families of Order Cypriniformes

1. Paired fins generally inserted horizontally; sometimes laterally; pectoral fin with atleast two undivided ray..... 2

   Paired fins inserted laterally; outermost anterior pectoral finray unbranched or all rays may be branched..... 3

2. Barbels absent, air bladder greatly reduced, free in the abdominal cavity; body greatly arched dorsally and flattened ventrally.....***Psilorhynchidae***

   Barbels present, 3 or more pairs; air bladder large, partly enclosed in a bony capsule..... .....***Balitoridae***

3. Barbels 3 or 4 pairs, erectile spine near eye; body wormlike to fusiform..... ***Cobitidae***

   Barbels 1 or 2 pairs or absent; no suborbital or preorbital spine. Body usually laterally compressed..... ***Cyprinidae***

Key to the Families of Order Siluriformes

1. Adipose dorsal fin absent..... 2

   Adipose dorsal fin generally present (except in *Clupeisoma garua* (Ham. Buch.) Schilbeidae where it may be absent in adult)..... 5

2. Head depressed, squarish in outline; head and body with many dermal papillae. Anal fin short.... ..... ***Chacidae***

   Head obtuse, compressed. Head and body without any dermal papillae. Anal fin long..... 3

3. Nasal barbels absent, Accessory respiratory organ absent; barbels 2-3 pairs..... ***Siluridae***

   Nasal barbels present. Accessory respiratory organ present; barbels 4 pairs..... 4

4. Dorsal fin long, accessory respiratory organs in gill chamber present..... ***Clariidae***

   Dorsal fin short, accessory respiratory organs in body cavity as tubular air sac present..... ..... ***Heteropneustidae***

5. Nostrils close together with very little interspace; distinct nasal barbel present..... 6

   Nostrils wide apart; separated by some interspace; nasal barbel usually present..... 7

6. Lateral line absent, gill membranes free from isthmus..... ***Amblycipitidae***

   Lateral line always present, gill membranes united with isthmus (except *Bagarius*)..... ***Sisoridae***

7. Dorsal spine absent, eyes small, subcutaneous..... ***Olyridae***

   Dorsal spine present, eyes large, not subcutaneous..... 8

8. Anal fin short..... ***Bagridae***

   Anal fin long..... ***Schilbeidae***

Key to the Families of Order Cyprinodontiformes

1. Jaws extended to form a beaklike structure; lateral line running along ventral margin of body... 2

   Jaws not extended to form a beak like structure; lateral line chiefly on head, not on body..... 3

2. Body elongate, subcylindrical or laterally compressed; small detachable cycloid scales. Pectoral fin short inserted high on sides..... ***Belonidae***

3. Body fusiform compressed. Scales large, Pectoral fin low set..... ***Aplocheiliidae***

Diagnostic characters of Family of Order Synbranchiformes

Body elongate, without paired fins. Dorsal and anal fin absent or reduced to median folds. Scales when present small, oval and confind to caudal region mainly and arranged in longitudinal rows. Eyes small well forward in skull and covered by dense skin. Anterior and posterior nasal aperture present, caudal fin reduced or absent.....***Synbranchidae***

Key to the Families of Order Perciformes

1. Body eel-like, pelvic absent..... 2

   Body not eel-like, pelvic present..... 3

2. Dorsal fin preceded by a series of isolated stout spines; body with small scales; fleshy rostral appendages present .....***Mastacembelidae***

   No dorsal spines; body naked; rostral appendages absent or reduced.....***Chaudhuriidae***

3. Body compressed, short, oblong or elongated. Pelvic thoracic or jugular, typically with a spine and 4 or 5 soft rays..... 4

   Body elongated, sybcylindrical or cylindrical. Pelvic subabdominal, may be with a spine or soft rays only..... 8

4. Pelvic fins united with a membrane across their bases, forming a sucking disc.....***Gobiidae***

   Pelvic fins may be close but not united as above, may be apart..... 5

5. An accessory respiratory organ in the form of a cavity above the 3rd or upper portion of the first branchial arch..... 6

   No such accessory respiratory organ..... 7

6. First ray of pelvic fin produced into a long filament. Pelvic fins inserted behind or posterior to pectoral fin.....***Belontiidae***

   First ray of pelvic fin not produced into a long filament. Pelvic fins inserted below base of pectoral fin.....***Anabantidae***

7. Lateral line incomplete or absent; dorsal fin continuous, caudal rounded.....***Nandidae***

   Lateral line complete, double dorsal fin; their bases well separated, caudal forked.....***Ambassidae***

8. Supra branchial organ present in the form of a simple vascular chamber. Dorsal and anal fins long, continuous, without spines. Pelvic with 6 soft rays; lateral line present ..... ***Channidae***

   Supra branchial organ absent. Two widely separated dorsal fins, first with 4 spines. Pelvic fin with a spine and 5 soft rays; lateral line absent.....***Mugilidae***

Diagnostic characters of Family of order Tetraodontiformes

Body more or less short, skin covering modified into small or large spines or laminae. A median

suture present, gill openings narrow immediately in front of pectoral fin. Single dorsal and anal fin without spines. Pelvic fin absent; lateral line absent ..... ***Tetraodontidae***

Diagnostic characters of Genus of Family Notopteridae

Body deep and strongly compressed, abdomen serrated with approximately 28 scutes. Head compressed, snout obtuse, convex. Mouth wide, cleft of mouth extending beyond posterior border of eye. Eyes in anterior part of head. Lips thin, jaws equal. Preopercle serrated, gill membranes partly united. Dorsal fin small with 7-8 rays and inserted almost in the middle of the body. Anal fin very long with 100 to 135 rays and confluent with the caudal. Scales small, lateral line more or less arched with about 180 scales ..... ***Notopterus***

1. Genus *Notopterus* Lacepede

Notopterus Lacepede, 1800, *Hist. nat. Poiss.*, 2 : 189. (Type species : *Notopterus kapirat* Lacepede =*Gymnotus notopterus* Pallas); Talwar and Jhingran, 1991, *Inland Fishes* vol. *1* : 62.

Key to the Species

1. Maxilla extends considerably beyond posterior margin of eye; preorbital smooth, a row of about 15 transverse silvery bars on back which is deeply convex ..... *N. chitala*

   Maxilla extends to middle of eye; preorbital serrated, no transverse bars on back which is not deeply convex ..... *N. notopterus*

Notopterus chitala (Hamilton-Buchanan)

(Plate I, Figure 1)

Mystus chitala Hamilton-Buchanan, 1822, *Fishes of Ganges;* 236, 382 (Type locality : Rivers of Bengal and Bihar)

Notopterus chitala : Talwar and Jhingran, 1991, *Inland Fishes*, vol. *1* : 63.

Local name : "Kha Chitol" (Khasi)

Materials examined : 1 ex. (Garo hills)

Maeristic data

D. ii. 7-8, P.i.11, V.i. 4-5, A + C 110-135, L.1. 180, L. tr. 19/27, Predorsal scales 76, Scales around caudal peduncle 34.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Baghmara)

Elsewhere : India : Assam, Bihar, Lower Bengal, Orissa, North India; Bangladesh; Burma; China; Indonesia; Malaya; Pakistan and Thailand.

Minimum Maximum length reported so far; 225 mm 1220 mm TL.

Remarks : The species is available only below 500 M alt. very commonly available. It is interesting to note that the ventral fins are joined at the base.

Inhabits freshwater, particularly larger rivers.

Notopterus notopterus (Pallas)

(Plate I, Figure 2)

Gymnotus notopterus Pallas, 1769, *Spicil. Zool.*, *7* : 40, pl. 6, fig. 2. (Type locality : ? Indian Ocean)

Notopterus notopterus : Talwar and Jhingran, 1991, *Inland Fishes* vol. *1* : 64.

Materials examined : 1 ex. (Garo hills)

Meristic data:
D.ii 5-6, 10-11, P.i. V. i. 4-5, A + C. 119-129, L.l. 180

Distribution in Meghalaya : Garo hills (Siju)

Elsewhere : India; Bangladesh; Burma; Indonesia; Malaya; Nepal; Pakistan; Thailand.

Minimum Maximum length reported so far : 128 mm 606 mm TL. (or more)

Remarks : Commonly available fish occurring in lower altitude. Inhabits fresh and brackish waters.

Diagnostic characters of Genus of Family Clupeidae

Body well compressed. Abdomen serrated with 18-19 prepelvic and 8-10 post pelvic scutes. Head compressed, short, snout rounded. Mouth terminal, upper jaw with a distinct median notch at centre. Scales small, 77-110 in lateral series. Dorsal fin inserted about middle point of body; pelvic fin placed below dorsal fin; anal fin short and well behind dorsal fin..... *Gudusia*

2. Genus ***Gudusia*** Fowler

Gudusia Fowler, 1911, *Proc. Acad. nat. Sci. Philad.*, *63* : 207. (Type species : *Clupanodon chapra* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* :95.

Diagnostic characters of Species

Body fairly deep, its depth 2.6-3.2 in SL. Dorsal fin inserted more or less equidistant between tip of snout and base of caudal fin. Depressed tip of dorsal fin extends to behind vertical from anal fin origin. Hind margin of scales smooth..... ***G. chapra***

Gudusia chapra (Hamilton-Buchanan)

(Plate I, Figure 3)

Clupanodon chapra Hamilton-Buchanan, 1822, *Fishes of Ganges* : 248, 383 (Type locality : Ganges river in northern Bihar).

Gudusia chapra : Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* : 96.

Local name : "Kha Chapila" (Khasi)

Material examined : 52 exs. (41 from Khasi hills, 11 from Garo hills)

Meristic data:

D.iv.11-13, P.i.12-14, V.i.7, A.ii-iii. 19-22, C. 17-19, L.l. 77-110, L.tr. 13/20, Predorsal scales 28, Scales around caudal peduncle 30.

Distribution in Meghalaya : Khasi hills (Shells, Cherrapunjee), Garo hills (Phulbari, Baghmara, Tura).

Elsewhere : India : Throughout India; Bangladesh; Burma; Malaya; Nepal; Pakistan; Penang; Phillipines.

Minmum-Maximum length reported so far : 60mm 204 mm TL.

Remarks : The species is not very common in Meghalaya. This could be collected only from below 200 M alt. Caudal fin rays are more (18-19) than what is report so far (17, Day 1889). A black blotch is sometimes present near opercular region. Insome specimens 4-6 light blotches are present above lateral line and in others a light band is present along the lateral line.

Inhabits rivers.

Diagnostic characters of Genus of Family Engrauliidae

Body oblong to elongate, compressed or strongly compressed but not greatly tapering. Caudal large, forked; upper pectoral finrays not detached from each other; anal fin long with 48-81 rays, not joined with caudal fin. Uppermost pectoral finray is filamentous. Belly sharply keeled with 21-40 scutes. Scales moderate, 40-57 in lateral series- ..... ***Setipinna***

3. Genus *Setipinna* Swainson

Setipinna Swainson, 1839, *Natural History Animals, 2* : 292 (Type species : *Setipinna megalura* Swainson = *Clupea phasa*. Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* : 132.

Diagnostic characters of Species

Body fusiform and strongly compressed. Belly strongly keeled with 21 or 22 scutes. Head length 5.5-6.4 in SL. Mouth slightly oblique; maxilla short. Pectoral filament long; caudalfin forked, its upper lobe slightly truncate and shorter than lower..... *S. phase*

Setipinna phasae (Hamilton-Buchanan)

(Plate I, Figure 4)

Clupea phasa Hamilton-Buchanan, 1822, *Fishes of Ganges* : 240, 382 (Type locality : brackish rivers of Bengal).

Setipinna phasa : Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* :136.

Material examined : 9 exs. (Garo hills)

Meristic data :

D.i.12-15, P.i.13-14, V.i.6, A.ii-iii, 66-78, C. 19.L.1.52-56, L.tr.7/7, Predorsal scales 12-13, Scales around caudal peduncles 11-12.

Distribution in Meghalaya : Garo hills (Dalu, Tura)

Elsewhere : India : Throughout India; Bangladesh; Burma: Mandalaya; Pakistan.

Minimum-Maximum length reported so far : 87 mm 408 mm TL.

Remarks : The species is available only in lower altitude; not very common in Meghalaya. The length of the filamentous pectoral finray varies in different specimens.

Inhabits rivers and estuaries.

Key to the Genera of Family Cyprinidae

1. Abdomen or part of abdomen compressed into a sharp keel like edge, barbels absent..... 2

   Abdomen not compresed and no keel is formed (except Genus *Osteobrama)*; barbels may or may not be present. 4

2. Body generally deep; interorbital region naked; no symphysial process on lower jaw. Lateral line when present curved abruptly downwards above pectoral fin..... ***Chela***

   Body elongate; interorbital region scaly; a symphysial knob on lower jaw usually well developed. Lateral line curved gently downwards above pectoral fin..... 3

3. Abdominal keel hardened; pectoral axial scale thickened along its lower border. Lateral line with 120-160 scales..... ***Securicula***

   Abdominal keel not hardened; pectoral axial scale not thickened along its lower border. Lateral line with 42-112 scales..... ***Salmostoma***

4. Upper lip continuous with skin of snout, crenulated; mouth conspicuously inferior, lower lip may or may not be modified into an adhesive suctorial dise..... 5

   Upper lip separated from skin of snout by a groove; mouth terminal, subinferior of distinctly inferior; lower lip without a suctorial disc..... 6

5. Lower lip modified into a suctorial disc; upper and lower lip continuous..... ***Garra***

   Lower lip not modified into a suctorial disc; upper and lower lip not continuous .... ***Crossocheilus***

6. Lower jaw without any symphysial knob; dorsal fin inserted before or opposite or slightly behind to origin of pelvic fin; generallywith a spine. Lateral line running along median line of caudal peduncle..... 7

   Lower jaw generally with a symphysial knob fitting in a notch of upper jaw; dorsal fin inserted behind base of pelvic fin devoid of a spine. Lateral line if present abruptly bent downward and if complete, running along lower half of caudal peduncle..... 16

7. Last unbranched ray of anal fin osseous, serrated on its posterior egde; upper jaw more or less projecting but not protractile..... ***Cyprinus***

   Last unbranched ray of anal fin generally not osseous but if osseous than non-serrated. Snout

plain, not divided..... 8

8. Dorsal fin inserted posterior to pelvic fin; generally extending to over anal fin. Abdonminal edge sharp..... ***Osteobrama***

Dorsal fin inserted above pelvic fin or slightly anterior to it..... 9

9. A knob or a horny tubercle present at the symphysis of lower jaw..... 10

No such symphysial knob present..... 11

10. A groove posterior to lower lip present. Dorsal with 8-16 branched rays; upper lip fringed or entire, not continuous with lower. Barbels 1 or 2 pairs or entirely absent..... ***Cirrhinus***

11. Upper lip absent; no barbels. Eyes visible from underside of head. Head enormously large, scales big..... ***Catla***

Upper lip present, head moderate. Barbels may or may not be present..... 12

12. Lower lip with an uninterrupted posterior groove, continuous around corner of mouth. Lateral line complete. Barbels present..... ***Tor***

Lower lip with posterior groove interrupted in the middle when a groove is present or without any groove..... 13

13. Lower lip conspicuously separated from lower jaw which has a horny covering. Snout entire without any lobes. Barbels present. Dorsal spine smooth..... ***Neolissocheilus***

Lower lip closely attached to lower jaw or very thinly separated. Dorsal spine may be present or absent; if present may be serrated or smooth. Barbels may be present or absent..... 14

14. Snouth with median and lateral lobes; snout and cheeks with horny tubercles. Anal finray may or may not be elongated. Barbels present. Dorsal spine serrated..... ***Chagunius***

Snout entire without any lobes. Cheeks free from tubercles. Snout rarely tuberculated. Anal fin ray not elongated. Barbels may be present or absent. Dorsal spine present or absent..... 15

15. Distinct lips, no horny covering on inner side of lips. Scales with few and strongly radiating striae. Dorsal fin with or without spine..... ***Puntius***

A horny covering on inner side of one or both lips present; lower jaw covered by lip; lower lip attached to lower jaw along entire mouth. Dorsal fin without spine..... ***Labeo***

16. Elongated maxillary barbel extending upto anal fin. No symphysial knob on lower jaw... ***Esomus***

Maxillary barbel short or absent; a symphysial knob usually present on lower Jaw..... 17

17. Mouth large, maxilla extending beyond anterior margin of eye..... 18

Mouth small to moderate; maxilla not extending beyond anterior margin of eye..... 19

18. Lower jaw longer than combined length of snout and eye; pectoral axillary scale elongate without a fleshy border..... ***Raiamas***

Lower jaw shorter or equal to combined length of snout and eye; pectoral axillary scale with a fleshy border ..... ***Barilius***

19. Upper lip absent, lateral line incomplete; barbels absent..... ***Amblypharyngodon***

Upper lip present; lateral line complete, incomplete or absent; barbels may be present or absent.. 20

20. Anal fin with 13-20 rays; dorsal fin inserted anterior to origin of anal fin. Barbels present..... 21

Anal fin with 7-8 rays; dorsal fin inserted behind origin of anal fin, barbels may be present or absent..... 22

21. Dorsal fin with 6-7 branched rays; lateral line incomplete or absent ..... ***Brachydanio***

Dorsal fin with 8-18 branched rays; lateral line complete..... ***Danio***

22. Barbels present (rostral only); lateral line with 40-44 scales; body and fin marking absent..... ..... ***Bengala***

Barbels absent; lateral line with less than 36 scales..... 23

23. Distinct colour pattern comprising a black lateral band and dark edges to caudal.... ***Parluciosoma***

No distinct colour pattern..... ***Rasbora***

4. Genus *Catla* Valenciennes

Catla Valenciennes, 1844, *Hist. nat. Poiss., 18* : 140 (Type species : *Cyprinus catla* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1*. 163.

Diagnostic characters of Species

Body short and deep, somewhat laterally compressed, its depth 2.5-3.0 in SL. Head enormously large exceeds almost half of body length. Snout bluntly rounded, mouth wide and terminal; lower lip very thick. Eyes large, ventro-lateral in position. Pectoral fin long extends to pelvic fin..... *C catla*

Catla catla (Hamilton-Buchanan)

(Plate II, Figure 1)

Cyprinus catla Hamilton-Buchanan, 1822, *Fishes of Ganges* : 287, 318, pl. 13, fig. 81 (Type locality : rivers & tanks of Bengal)

Catla catla : Talwar and Jhingran, 1991. *Inland Fishes* Vol. *1* : 163.

Material examined : Not collected by the author but reported from Meghalaya.

Meristic data :

D.iii-iv. 14-16, P.i.20, V.i.8, A.iii.5, C.19, L.l.40-43, L.tr. 7.5/9, Predorsal scales 11-13, Scales around caudal peduncle 22-24.

Distribution in Meghalaya : Khasi hills

Elsewhere : India : Throughout India upto Krishna river but introduced into Cauvery river system; Bangladesh; Nepal; Pakistan; Sri Lanka; Thailand.

Maximum length reported so far : 1830 mm TL.

Remarks : Not very common in Meghalaya. Reported so far from lower altitude only.

Inhabits rivers, tanks, reservoirs.

5. Genus ***Chagunius*** Smith

Chagunius Smith, 1933, *Proc. biol.Soc.Wash., 51* : 157 (Type species: *Cyrpinus chagunio* (Hamilton-Buchanan); Talwar & Jhingran, 1991, *Inland Fishes* Vl. 1 : 165.

Diagnostic characters of species

Body elongated; its depth slightly more than head length. Mouth narrow, subterminal. Barbels 2 pairs longer than orbit; Eye diameter 5-6.5 in HL. Dorsal fin strong and serrated; scales small..... ..... *C. chagunio*

Chagunius chagunio (Hamilton-Buchanan)

(Plate II, Figure 2)

Cyprinus chagunio Hamilton-Buchanan. 1822, *Fishes of Ganges* : 295, 387 (Type locality : Yamuna river and northern rivers of Bihar and Bengal)

Chagunius chagunio : Talwar & Jhingran, 1991, *Inland Fishes,* Vol. *1* : 167.

Material examined : 17 exs. (2 from Khasi hills, 15 from Garo hills)

Meristic data :

D.iii-v. 8-9, P.i.14-15, V.i.8, A.iii,5-7, C. 19, L.l. 44-47, L.tr. 11-12/9, Predorsal scales 15-20, Scales around caudal peduncle 20-25.

Distribution in Meghalaya : Khasi hills (Hat mawdon), Garo hills (Baghmara, Bozengdoba, Rongsangiri).

Elsewhere : India : Assam, West Bengal, Bihar, Uttar Pradesh, Punjab, Darjeeling, Eastern Himalayas, Western Himalayas, Orissa; Bangladesh; Burma; Nepal; Pakistan.

Minimum Naximum length reported so far : 94 mm 458 mm TL.

Remarks : Not very common in Meghalaya; recorded so far from lower altitude of Khasi and Garo hills only.

Inhabits larger rivers characterised by rocky bottom clear and fast flowing water and little or no vegetation.

6. Genus ***Cirrhinus*** Cuvier

Cirrhinus Oken, 1817, *Isis* : 1833 (on *Les cirrhinus* Cuvier, 1817, *Regne Animale, 2* : 193) (Type species : *Cyprinus cirrhosus* Bloch); Talwar and Jhingran, 1991, *Inland Fishes,* Vol. *1* :169.

Key to the species

1. Dorsal fin with 8-9 branched rays 2

   Dorsal fin with 12-13 branched rays 3

2. Lateral line scales 34-42; dorsal fin height less than body depth,one short rostral pair of barbels.. .....*C. reba*

3. Lateral line scales 40-46; length of head equal to body depth; one short rostral pair of barbels..... .....*C. mrigala mrigala*

Cirrhinus mrigala mrigala (Hamilton-Buchanan)

(Plate II, Figure 3)

Cyprinus mrigala Hamilton-Buchanan, 1822, *Fishes of Ganges* : 279, 386, pl. 6, fig. 79 (Type locality : ponds and freshwater rivers of gangetic provinces)

Cirrhinus mrigala mrigala : Talwar & Jhingran, 1991, *Inland Fishes*, Vol. *1* : 172.

Local name : "Kha mirka" (Khasi)

Material examined : 3 exs. (1 from Khasi hills, 2 from Garo hills)

Meristic data :

D.iii-iv. 12-13, P.i.15-17, V.i.8, A.iii.5, C.19, L.l. 40-46, L.tr. 7/8, Predorsal scales 17, Scales around caudal peduncle 16.

Distribution in Meghalaya : Khasi hills (Mawpun), Garo hills (Baghmara, Rongsangiri)

Elsewhere : India : Assam, West Bengal, Darjeeling, Eastern and Western Himalayas, Eastern Punjab, Uttar Pradesh, Ahmedabad, Cutch, Bombay, Madras (Introduced); Bangladesh; Burma, Nepal; Pakistan.

Minimum-Maximum length reported so far : 166 mm 915 mm Tl.

Remarks : Not very commonly occurring in Meghalaya. Inhabits rivers and tanks.

Cirrhinus reba (Hamilton-Buchanan)

(Plate III, Figure 1)

Cyprinus reba Hamilton-Buchanan, 1822, *Fishes of Ganges* : 280, 386 (Type Locality : rivers and ponds of Bengal & Bihar)

Cirrhinus reba : Talwar & Jhingran, 1991, *Inland Fishes* Vol. *1* ; 173.

Material examined : 45 exs. (8 from Khasi hills, 37 from Garo hills)

Meristic data :

D.ii-iii.8-9, P.i.13-15, V.i.8, A.iii.5, C.19, L.l. 34-42, L.tr. 7.5/8.5, Predorsal scales 13-14, Scales around caudal peduncle 16.

Distribution in Meghalaya : Jaintia hills, Khasi hills, Garo hills (Baghmara, Siju)

Elsewhere : India : Throughout India, Bangladesh; Burma; Nepal; Pakistan; Thailand.

Minimum-Maximum length reported so far : 135 mm 305 mm TL.

Remarks : The species is recorded so far from lower altitude only (below 200 M alt.). Lateral line scales in Meghalayan population are more (42 var. 34-38, Talwar & Jhingran, 1991)

Inhabits clear rivers and tanks.

7. Genus ***Cyprinus*** Linnaeus

Cyprinus Linnaeus, 1758, *Systema Naturae*, ex. 10, *1* : 320 (Type species : *Cyprinus carpio* Linnaeus); Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* : 184.

Diagnostic characters of the varieties

1. Body fully covered by regularly arranged rows of scales; lateral line conspicuous, with 33-35 scales ..... *C. carpio* var *communis* (Scale carp)

   Body covered unevenly with a few large and bright scales. A large area of the body, however, is without scales ..... *C. carpio* var *specularis* (Mirror carp)

Cyprinus carpio Var. ***Communis*** (Linnaeus)

(Plate III, Figure 2)

Cyprinus carpio Linnaeus, 1758, *Systema Naturae*, ed. 10, *I: 320* (Type locality : Europe)

Cyprinus carpio : Talwar & Jhingran, 1991, *Inland Fishes*, Vol. *1* : 184.

Local name : "Kha dkhar" (Khasi)

Material examined : 12 exs. (11 from Khasi hills, 1 from Garo hills)

Meristic data :

D. iii-iv. 17-20, P.i.14-15, V.i.8, A. iii.5, C. 19, L.1. 33-35, L. tr. 5.5/4.5-5.5. Predorsal scales 13, Scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills (Barapani), Garo hills (Amphangiri, Williamnagar)

Elsewhere : India : Introduced in India. Naturally found all through China; Korea; Japan; Taiwan; Europe; America.

Minimum-Maximum length reported so far : 60 mm 700 mm TL (May attain bigger size)

Remarks : Common culturable fishes of Meghalaya. Introduced for fish culture in almost all the culturable ponds by the Fishery Department. This is not indigenuous to Meghalaya. From commercial view point these are most economically important species.

Inhabits rivers, tanks, ponds.

Cyprinus carpio var. ***specularis*** Lacepede

(Plate III, Figure 3)

Cyprinus carpio Linnaeus, 1758, *Systema Naturae*, ed. 10, *1* : 320 (Type locality : Europe)

Cyprinus carpio : Talwar and Jhingran, 1991. *Inland Fishes*, Vol. *I* : 185.

Local name : "Kha dkhar" (Khasi)

Material examined : 1 ex. (Khasi hills)

Meristic data :

D. iii.17, P.i.15, V.i.7-8, A.iii.5, C.18, L.l. 20, (irregular scale counting), Predorsal scales 9, Scales around caudal peduncle 12.

Distribution in Meghalaya : Khasi hills (Sumer, Barapani) Jaintia hills, Garo hills.

Elsewhere : India : Introduced in India. Naturally found all through China; Korea; Japan; Taiwan; Europe; America.

Minimum-Maximum length reported so far : 42 mm 700 mm TL (May attain bigger size)

Remarks :,Commonly known as mirror carp; not very common in occurrence like scale carp.

Inhabits rivers, tanks, reservois and ponds

8. Genus ***Labeo*** Cuvier

Labeo Cuveir, 1817. *Regne Animale, 2* (ed.1) : 194 (Type species :*Cyprinus niloticus* Forsskal = *Cyprinus rufescens* Hasselquist); Talwar and Jhingran, 1991, *Inland Fishes, Vol. 1 : 193.*

Key to the Species

1. Dorsal fin rays not more than 15, only one pair of barbels 2

   Dorsal fin rays more than 15, mostly two pairs of barbels 7

2. Lateral line scales not more than 45, scales between pelvic fin base and lateral line not more than 7 3

   Lateral line scales not more than 45, scales between pelvic fin base and lateral line less than 6.. 4

3. Snout with a distinct deep groove across; dorsal fin inserted above last quarter of pectoral fin. Scales between lateral line and pelvic finbase may be occassionally 6 ..... *L. dero*

4. Pectoral fin reaching pelvic fin; eyes 4-4.3 in head length ..... *L. bata*

   Pectoral fin not reaching pelvic fin 5

5. Snout with a distinct lateral lobe; eye diameter 4.5-5.5 in head length. Lips with a distinct inner fold which is interrupted ..... *L. pangusia*

   Snout without any lobe 6

6. Dorsal fin inserted above tip or slightly anterior to pectoral fin. Head length 5-5.25 in TL. Lateral line scales 37-39 ..... *L. boga*

7. Dorsal fin rays 20-27 8

   Dorsal fin rays 13-19 9

8. Dorsal finrays 24-26; scales between lateral line and pelvic fin base 5..... *L. nandina*

9. Lateral line scales more than 50 (50-85)..... 10

   Lateral line scales less than 50 (38-47)..... 11

10. Lateral line scales 71-84; scales between lateral line and pelvic fin base 9-13.....*L. gonius*

11. Scales between lateral line and pelvic fin base 5-7 lateral line scales 38-44; snout not truncate, without any lateral lobe. Simple unbranched rays in dorsal fin 3 or 4..... 12

12. Scales between lateral line and pelvic fin base 6-6.5; a pair of small maxillary barbels concealed in lateral groove; fins greyish or dark..... *L. rohita*

    Scales between lateral line and pelvic fin base 5.5 or 6. One pair each of rostral and maxillary barbels present; fins black.....*L. calbasu*

Labeo bata (Hamilton-Buchanan)

(Plate IV, Figure 1)

Cyprinus bata Hamilton-Buchanan, 1822, *Fishes of Gangés* : 283, 386 (Type locality : rivers and ponds of Bengal)

Labeo bata : Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* : 199.

Material examined : 1 ex. (Jaintia hills)

Meristic data :

D.ii-iv. 9-10, P.i.14-17, V.i. 8-9, A.ii-iii.5, C. 19, L.1. 37-40, L.tr. 6-7/5-5.5, Predorsal scales 10-13, Scales around caudal peduncle 24-26.

Distribution in Meghalaya : Jaintia hills.

Elsewhere : India : Throughout India; Bangladesh; Nepal.

Minimum-Maximum length reported so far : 100 mm 610 mm TL.

Remarks : Not commonly available in Meghalaya.

Inhabits rivers; widely cultured in bheries, estuaries, tanks and ponds.

Labeo boga (Hamilton-Buchanan)

(Plate IV, Figure 2)

Cyprinus boga Hamilton-Buchanan, 1822, *Fishes of Ganges* : 286, 386, Pl. 28, fig. 80 (Type locality : River Brahmaputra)

Labeo boga : Talwar and Jhingran, 1991, *Inland Fishes,* Vol. *1* : 200.

Local name : "Kha bah" (Khasi)

Material examined : 9 exs. (Garo hills)

Meristic data :

D.ii-iii.9-10, P.i. 14-15, V.i.8, A.ii.5, C.19, L.1.37-39, L.tr. 7/5, Predorsal scales 14, Scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills (R. Umsot), Garo hills (Baghmara, Songkhama, Wageasi).

Elsewhere : India : Assam, West Bengal, North Bengal,Bihar, Uttar Pradesh, Orissa, Punjab, Deccan; Bangladesh; Burma; Nepal; Pakistan.

Minimum-Maximum length reported so far : 120 mm 305 mm TL.

Remarks : Rarely occurring in Meghalaya and from lower altitude only. Inhabits rivers.

Labeo calbasu (Hamilton-Buchanan)

(Plate IV Figure 3)

Cyprinus calbasu Hamilton-Buchanan. 1822, *Fishes of Ganges* : 297,387,pl.2, fig. 33 (Type locality:rivers and ponds of Bengal and in the Western Provinces).

Labeo calbasu : Talwar and Jhingran, 1991, *Inland Fishes* vol. *I* : 203

Local name : "Kha Jong" (Khasi)

Material examined : 3 exs. (Garo hills)

Meristic data :

D.iii-iv. 13-16, P.i.16-18, V.i.8, A.ii-iii5, C. 19,L.1. 40-44, L.tr.7/5.6, Predorsal scales 15-20, Scales around caudal peduncle 18-20.

Distribution in Meghalaya : Khasi hills, Jaintia hills (Dawki) Garo hills (Baghmara, Rongsangiri)

Elsewhere : India : Throughout India; Bangladesh; Burma; Nepal; Pakistan; South China; Thailand.

Minimum-Maximum length reported so far : 170 mm 915 mm TL.

Remarks : Recorded only from lower altitude. Though common in plain region, it is rare in Meghalaya.

Inhabits rivers and ponds.

Labeo dero (Hamilton-Buchanan)

(Plave V, Figure 1)

Cyprinus dero Hamilton-Buchanan, 1822, *Fishes of Ganges* : 277, 385, pl. 22, fig. 78 (Type locality : Brahmaputra river)

Labeo dero : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *I* : 204.

Local name : "Kha bah" (Khasi)

Material examined : 8 exs. (Garo hills)

Meristic data :

D.ii-iii.9-12, P.i.15-17, V.i.7-8, A.ii-iii. 5, C. 19, L.1. 40-44, L. Tr. 11/6-7, Predorsal Scales 9-10, Scales around caudal peduncle 12.

Distribution in Meghalaya : Jaintia hills, Garo hills, (Songkhama, Siju)

Elsewhere : India : Assam, Punjab, Uttar Pradesh, All along Himalayas including Kashmir and Arunachal Pradesh; Bangladesh; Burma; China; Nepal; Pakistan; Sri Lanka.

Minimum-Maximum length reported so far : 90 mm 268 mm TL.

Remarks : Not very common in this region.

Inhabits sides of torrential hill streams in shallow waters.

Labeo gonius (Hamilton-Buchanan)

(Plate V, Figure 2)

Cyprinus gonius Hamilton-Buchanan, 1822. *Fishes of Ganges* : 292, 387, pl. 4, fig. 82 (Type locality : freshwater rivers and ponds of Bengal).

Lebeo gonius : Talwar and Jhingran, 1991, *Inland Fishes*, Vol *1* : 210.

Local name : "Kha ski" (Khasi)

Material examined : 2 exs. (1 from Khasi hills, 1 from Garo hills)

Meristic data :

D.ii-iii. 13-16, P.i.16, V.i.8, A.ii.5-6, C.19, L.l. 71-84, L.tr. 16/9-13, Predorsal scales 26, Scales around caudal peduncle 34.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Bagmara)

Elsewhere : India : Throughout India; Banglaesh; Burma; Nepal; Pakistan.

Minimum-Maximum length reported so far : 170 mm 1525 mm TL.

Remarks : Collected so far from lower altitude only (below 200 M alt.)

Inhabits rivers and ponds.

Labeo nandina (Hamilton-Buchanan)

(Plate V, Figure 3)

Cyprinus nandina (Hamilton-Buchanan, 1822. *Fishes of Ganges* : 300, 388, pl. 8, fig. 84 (Type locality : Mahananda R.)

Lebeo nandina : Talwar and Jhingran, 1991 *Inland Fishes*, Vol. *1* : 214.

Material examined : Not collected by the author; but reported from Meghalaya.

Meristic data :

D ii-iii,. 22-24, P.i.14-15, V.i.8, A.ii.5, C.19, L.l. 42-44, L.tr. 6-7/5, Predorsal scales 11-12, scales around caudal peduncle 14-15.

Distribution in Meghalaya : Khasi hills

Elsewhere : India : Assam, West Bengal; Bangladesh; Burma.

Maximum length reported so far : 918 mm TL.

Remarks : Rarely occurring in Meghalaya. Inhabits rivers and reservoirs.

Labeo pangusia (Hamilton-Buchanan)

(Plate V, Figure 4)

Cyprinus pangusia Hamilton-Buchanan, 1822, *Fishes of Ganges* : 285, 386 (Type locality : Kosi river, Uttar Pradesh)

Lebeo pangusia : Talwar and Jhingran, 1991, *Inland* Vol. *1* : 216.

Local name : "Kha bah" (Khasi)

Material examined : 5 exs. (2 from Khasi hills, 3 from Garo hills)

Meristic data :

D.ii-iii, 10-11, P.i. 14-15, V.i.8, A.ii.5, C. 19, L.l. 40-42, L.tr 7.5/5.5-6, Predorsal scales 15, scales around caudal peduncle 20.

Distribution in Meghalaya : Khasi hills (Shella), Jaintia hills, (Dawki), Garo hills (Baghmara, Wageasi)

Elsewhere : India : Ganges and Brahmaputra river system, Deccan; Bangladesh; Pakistan.

Minimum-Maximum length reported so far : 120 mm 650 mm TL.

Remarks : Not very common in Meghalaya; collected so far from below 300 M alt.

Inhabits rivers, lakes and ponds.

Labeo rohita (Hamilton-Buchanan)

(Plate VI, Figure 1)

Cyprinus rohita Hamilton-Buchanan, 1822, *Fishes of Ganges* : 301, 388, pl. 36, fig. 85 (Type locality : Freshwater rivers of Gangetic Provinces)

lebeo rohita : Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* : 219.

Local name : 'Kha bah" (Khasi)

Material examined : 1 ex. (Garo hills)

Meristic data :

D.iii-iv. 12-14, P.i.16-18 V.i.8, A.ii-iii. 5, C. 19, L.l. 40-44, L.tr. 6/6-6.5, Predorsal scales 12-16, scales around caudal peduncle 23.

Distribution in Meghalaya : Khasi hills, Garo hills (Banhmara)

Elsewhere : India : Throughout India except where it is introduced; Bangladesh; Burma; Terai Region of Nepal; Pakistan.

Minimum-Maximum length reported so far : 290 mm 915 mm TL (may attain bigger size)

Remarks : Not very common in Meghalaya; recorded from lower altitude only. Inhabits rivers.

9. Genus ***Neolissochilus*** Rainboth

Neolissochilus Rainboth, 1985, *Beaufortia 35* (3) : 26 (Type species : *Barbus stracheyi* Day); Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* : 226.

Key to the species

1. Mouth nearly truncate, lower jaw edge sharp; lower labial fold widely interrupted in middle. Lateral line scales 28-32. Sides of snout and cheeks studdes with large tubercles..... .....N. *hexagonolepis*

   Mouth smoothly rounded; lower jaw edge blunt; lower labial fold continuous. Lateral line scale 25 or 26. No tubercles on snout and cheek ..... *N. hexastichus*

Neolissochilus hexagonolepis (McClelland)

(Plate VI, Figure 2)

Barbus hexagonolepis McClelland, 1839, *Asiat. Res.* : *19*(2) : 270, 340, pl. 41, fig. 3 (Type locality : Upper Assam)

Neolissochilus hexagonolepis : Talwar and Jhingran, 1991, *Inland Fishes*, Vol.*1* : 229.

Local name : 'Kha dkhar" (Khasi)

Material examined : 613 exs. (468 from Khasi hills, 52 from Jaintia hills, 93 from Garo hills)

Meristic data :

D.iii-iv, 9-10, P.i.14-16, V.i.8, A.ii-iii 5-6, C.19, L.l. 28-32, L.tr. 4.5/2.5-3.5, predorsal scales 8-10, scales around caudal peduncle 8-11.

Distribution in Meghalaya : Khasi hills (Barapani, Old Barapani, Jakrem, Kyrdemkulai, Lailad, Mawpat, Mawsmai, Nongpoh, Nongkhyllem, Nayabunglow, Sumer, Umsning, Umran, Upper Shillong). Jaintia hills (Dawki, Garrampani road, Jowai, Nartiang, Thadlaskein), Garo hills (Amphangiri, Anogiri, Bahgmara, Darugiri, Ganol river, Rongram, Rombagiri, Rongrengiri, Rongsangiri, Selbalgiri, Siju, Tikrikilla, Willamnagar).

Elsewhere : India : Assam, Arunachal Pradesh, Darjeeling, Eastern Himalayas; Bangladesh; Burma; China; Malaysia; Nepal; Sumatra; Thailand.

Minimum-Maximum length reported so far : 25 mm 2745 mm TL.

Remarks : Common hill stream fishes of Meghalaya. Occurring abundantly in Khasi hills. Small, medium and big sizes are available throughout the year in Khasi hills. The species is important from economic point of view. Artificial culture is being done by the Fishery department of Meghalaya in various culturable waters.

Inhabits streams, rivers, cultured in tanks and reservoirs.

Neolissochilus hexastichus (McClelland)

(Plate VI, Figure 3)

Barbus haxastichus McClelland, 1839, *Asiat. Res., 19*(2) : 269, 333, pl. 39, fig. 2 (Type locality : Great rivers in the plains of India)

Neolissochilus hexastichus : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 230.

Material examined : 6 exs. (2 from Khasi hills, 4 from Garo hills)

Meristic data :

D.iii-iv.9, P.i.16, V.i.8, A.ii-iii.5, 19, L1. 25-26, L.tr. 4/5, Predorsal scales 10, scales around caudal peduncle 8-9.

Distribution in Meghalaya : Khasi hills (Barapani), Garo hills (Siju)

Elsewhere : India : Rivers from Kashmir to Sikkim and Assam along the Himalayan foot hills; Burma.

Minimum-Maximum length reported so far : 30 mm 909 mm TL.

Remarks : Not commonly occurring like *hexagonolepis*, rarely available. Inhabits streams and rivers.

10. Genus *Osteobrama* Heckel

Osteobrama Heckel, 1842, in : Russegger's *Reisen in Europe, Asien und Africa, etc. I* (1) : 1033 (Type species : *Cyrpinus cotio* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes, Vol.* 1 : 235.

Diagnostic characters of Species

Body considerably compressed, its depth 2.1-2.6 in SL. Barbels absent, anal fin with 33-38 branched rays. Abdominal edge keeled between pelvic fin and anal fin; dorsal spine weak and serrated ..... *O. cotio cotio*

Osteobrama cotio cotio (Hamilton-Buchanan)

(plate VI, Figure 4)

Cyprinus cotio Hamilton-Buchanan, 1822, *Fishes of Ganges* : 339, 393, pl. 39, fig. 93 (Type locality : ponds and ditches of Bengal)

Osteobrama cotio cotio : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 238

Material examined : 13 exs. (6 from Khasi hills, 7 from Garo hills)

Meristic data :

D.ii-iv.8-9, P.i.12-14, V.i.8, A.iii. 32-38, C.19, L.1. 60-69, L.tr. 12-15/10-11, Predorsal scales 24, scales around caudal peduncle 24.

Distribution in Meghalaya : Khasi hills (Barapani, Cherrapunjee, Nongpoh, Shella), Garo hills(Baghmara, Dalu, Darugiri, Phulbari, Tura).

Elsewhere : India : Assam, West Bengal, Bihar, Central Province, Punjab, Uttar Pradesh; Bangladesh; Burma; China; N`epal; Pakistan.

Minimum-Maximum length reported so far : 37 mm 153 mm TL.

Remarks : Though common in plains, it is rarely occurring in Meghalaya. Inhabits freshwater rivers, ponds and lakes.

11. Genus ***Puntius*** (Hamilton-Buchanan)

Puntius Hamilton-Buchanan, 1822, *Fishes of Ganges* : 310, 388 (Type species: *Cyprinus sophore* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* : 250.

Key to the Species

1. Barbels present 2
   Barbels absent 7
2. Two pairs of barbels present 3
   One pair of barbels present 6
3. Dorsal spine strong, osseous, serrated 4
4. Dorsal spine as long as body depth, lateral line scales 35-42 ..... *P. clavatus*
   Dorsal spine equal to or shorter than body depth, lateral line scale 26-34 5
5. Dorsal fn inserted nearer tip of snout than to caudal fin base. Predorsal scales 10-11; no lateral colour bands on body or fin ..... *P. sarana sarana*
6. Dorsal spine strong, osseous,smooth, scales between middle of back and lateral line 5-5.5. Predorsal scales 10-12. A dark blotch from 23rd to 25th scale of lateral line. A dark spot along base of 1st-4th anterior dorsal finray and occassionally a dark mark behind gill openings. Lateral line scales 26-28 ..... *P. chola*
7. Dorsal spine strong, osseous, serrated 8
   Dorsal spine strong, osseous, smooth 12
8. Body without any vertical black coloured band, lateral line incomplete 9
   Body with vertical black coloured band; lateral line complete or incomplete 11
9. Branched rays in dorsal fin 7; only 6-7 rows of transverse scales. A horizontal blue line on body and two spots on sides of caudal peduncle ..... *P. shalynius*
   Branched rays in dorsal fin 8; about 12 rows of transverse scales; no band on body 10
10 Body depth 2.4 in TL. Predorsal scales 9; Black spot over posterior portion of anal fin; no spot on opercle ..... *P. conchonius*
   Body depth 3-3.5 inTL. Predorsal scales 11; two black blotches on body, first on anterior part of body either above pectoral fin or adjacent to dorsal fin; another on posterior part of anal fin ..... *P. ticto*
11. Lateral transverse rows of scales 8/10; body with 4 vertical black bands; first from back to opposite middle of pectoral fin, second from back to posterior end of anal fin base, third from

centre of dorsal fin and fourth at caudal fin base. Lateral line complete with 19-23 scales, predorsal scales 8-10, dorsal fin spine shorter than body depth ..... ***P. phutunio***

Lateral transverse rows of scales less than 8/10; body with 3 vertical bands; lateral line incomplete; 23 or 24 scales in longitudinal series.Dorsal fin spine longer than body depth..... ..... ***P. gelius***

12. Lateral line incomplete..... 13

    Lateral line complete..... 14

13. Dorsal fin nearly as high as body depth. Each scale with a number of fine black spots, most numerous at the anterior margin. A black blotch over posterior extremity of anal fin; sometimes extended in median line as far as tail ..... ***P. terio***

14. Lateral line scales 23-27; 3-3.5 rows of scales between lateral line and pelvic fine base. Body depth 3.5-3.7 in TL. Body not very deep. A round black blotch more or less distinct at root of caudal fin present ..... ***P. sophore***

Puntius chola (Hamilton-Buchanan)

(Plate VII, Figure 1)

Cyprinus chola Hamilton-Buchanan,1822, *Fishes of Ganges* ; 312, 389 (Type locality : Northeastern part of Bengal)

Puntius chola : Talwar and Jhingran, 1991, *Inland Fishes, Vol.* 1 : 263.

Local name : 'Shalynnai" (Khasi)

Material examined : 48 exs. (12 from Khasi hills, 2 from Jaintia hills, 34 from Garo hills)

Meristic data :

D.iii.8-9. P.i.14-15, V.i.8, A.ii-iii.5, C.19, L.1. 26-28, L.tr.5/5, Predorsal scales 10-12, scales around caudal peduncle 14-16.

Distribution in Meghalaya : Khasi hills (Cherrapunjee, Shella, Umran, Nongpoh), Jaintia hills (Dawki), Garo hills (Baghmara, Dalu, Damalgiri, Garobadha,Phulbari).

Elsewhere : India : Throughour India; Bangladesh; Burma; Nepal; Pakistan; Srilanka.

Minimum-Maximum length reported so far : 21 mm 128 mm TL.

Remarks : Not very common in hill streams, collected both from higher altitude of Khasi hills and lowera ltitude of Garo and Jaintia hills. Common in plain region.

Inhabits streams and rivers

Puntius clavatus (McClelland)

(Plate : VII, Figure 2)

Barbus clavatus McClelland, 1845, *Calcuttal J. nat. Hist., 5* : 280, pl.21, fig. 2 (Type locality : Sikkim mountains on northern frontier of Bengal).

Puntius clavatus : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* ; 265.

Material examined : 32 exs. (1 from Khasi hills, 31 from Garo hills)

Meristic data :

D.iii-iv, 8-9, P.i.14-16, V.i.8, A. iii.5-6, C. 19,L.l. 35-42, L.tr. 6/4, Predorsal scales 13, scales around caudal peduncle 23.

Distribution in Meghalaya : Khasi hills (Barapani), Jaintia hills, Garo hills (Rongrengiri)

Elsewhere : India : Assam, West Bengal, North Bengal below the Himalayan foot hills, Sikkim; Bangladesh; Burma; Nepal.

Minimum-Maximum length reported so far : 86 mm 240 mm TL.

Remarks : Not very common in Meghalaya.

Inhabits streams and rivers.

Puntius conchonius (Hamilton-Buchanan)

(Plate VII, Figure 3)

Cyprinus conchonius Hamilton-Buchanan, 1822, *Fishes of Ganges* : 317, 389 (Type locality : Ponds of northeast Bengal; Kosi river and Ami river)

Puntius conchonius : Talwar and Jhingran, 1991, *Inland Fishes, Vol.* 1 *: 266*

Material examined : 10 exs. (9 from Jaintia hills, 1 from Garo hills)

Meristic data :

D.iii.7-8, P.i.10, V.i.8, A.ii-iii.5, C.19, L.l. 24-26, L.tr. 5.5/6.5, Predorsal scales 11, scales around caudal peduncle 11-12.

Distribution in Meghalaya : Khasi hills, Jaintia hills (Dawki, Umkiang), Garo hills (Garobadha)

Elsewhere : India : Assam, West Bengal, Bihar, Uttar Pradesh,Punjab, Orissa, Eastern and Western Himalayas, Darjeeling, Deccan; Afghanistan; Bangladesh; Nepal; Pakistan.

Minimum-Maximum length reported so far : 25 mm 140 mm TL.

Remarks : Commonly occurring in plain region.

Generally inhabits streams and lakes.

Puntius gelius (Hamilton-Buchanan)

(Plate VII, Figure 4)

Cyprinus gelius Hamilton-Buchanan, 1822, *Fishes of Ganges* : 320, 390, pl.145, fig. 3 (Type locality : ponds and ditches of north-east Bengal)

Puntius gelius : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 272.

Material examined : 18 exs. (7 from Khasi hills, 11 from Jaintia hills)

Meristic data :

D.ii-iii.8, P.i.14, V.i.8, A.iii,5, C.19, L.l. 23-24, L.tr. 4/5, Predorsal scale 8.

Distribution in Meghalaya : Khasi hills (Nongstoin, Manai) Jaintia hills (Dawki, Muktapur).

Elsewhere : India : Assam, Bihar, Orissa, West Bengal; Bangladesh; Pakistan.

Minimum-Maximum length reported so far: 25 mm 50 mm TL.

Remarks : Not very common inMeghalaya.

Inhabits stagnent waters.

Puntius phutunio (Hamilton-Buchanan)

(Plate VIII, Figure 1)

Cyprinus phutunio Hamilton-Buchanan, 1822, *Fishes of Ganges* : 319, 390 (Type locality : ponds of north east Bengal)

Puntius phutunio : Talwar and Jhingran, 1991, *Inland Fishes,* Vol. *1* : 278

Material examined : Not collected by the author, but reported from Meghalaya.

Meristic data :

D.ii-iii.8, P.i.14, V.i.8, A.iii.5, C.19, L.l. 20-23, L.tr. 5/5, Predorsal scales 8-9, scales around caudal peduncle 9-11.

Distribution in Meghalaya : Khasi hills, Garo hills.

Elsewhere: India : Assam, West Bengal, Orissa, Goa; Bangladesh; Burma; Pakistan.

Maximum length reported so far : 77 mmTL.

Remarks : Rarely occurring in Meghalaya.

Inhabits clear stream and rivers and also muddy waters.

Puntius sarana sarana (Hamilton-Buchanan)

(Plate VIII, Figure 2)

Cyprinus sarana Hamilton-Buchanan, 1822, *Fishes of Ganges* : 307, 388 (Type locality : ponds and rivers of Bengal)

Puntius sarana sarana : Talwar and Jhingran, 1991, *Inland Fishes,* Vol *1* : 283.

Local name : "Kha putia" (Khasi)

Material examined : 35 exs. (2 from Khasi hills, 33 from Garo hills)

Meristic data :

D.iii-iv,8, P.i.14-16, V.i.8, A.iii.5, C.19, L.l. 30-33, L.Tr. 5.5-6/3.5-4, Predorsal scales 11-12, scales around caudal peduncle 14-18.

Distribution in Meghalaya : Khasi hills (Balat, Hatmawdon) Jaintia hills, Garo hills (Baghmara, Phulbari, Siju).

Elsewhere : India : Throughout India except penninsular India, south of Krishna; Afghanistan; Bangladesh; Bhutan; Burma; Nepal; Pakistan; Sikkim.

Minimum-Maximum length reported so far : 15 mm 310 mm TL.

Remarks : Common in plain region; recorded so far from lower altitude only. Scales around caudal peduncle in Meghalaya population is less (14 var, 18, Murty 1977).

Inhabits rivers and ponds.

Puntius shalynius Yazdani and Talukdar

(Plate VIII, Figure 3)

Puntius shalynius Yazdani and Talukdar, 1975, *J. Bombay nat. Hist. Soc., 72* (1) :218 (Type locality : Barapani lake near Shillong, Meghalaya).

Puntius Shalynius : Talwar and Jhingran, 1991, *Inland Fishes,* Vol. *1* : 286.

Local name : 'Shalynnai" (Khasi)

Material examined : 2780 exs. (2429 from Khasi hills 351 Jaintia hills)

Meristic data :

D.iii.7-8,P.i.12-14. v.i.7, A.ii.5-6, C.19, L.l.20-23, L.tr. 3-4/2.5-3.5, Predorsal scales 9-10, scales around caudal peduncle 10.

Distribution in Meghalaya : *Khasi hills* (Barapani, Cherrapunjee, Decame,Jakrem, Kyrdemkulai, Langiong, Mairang, Mawkdok, Mawsmai, Mawryngkneng, Mawpat, Mawphlang, Mawkynrew, Mylliem, Kyllang, Nayabunglow, Nongstoin, Nongkhlaw, Sumer, Syrkon, Shillong, Sonapahar, Sohiong, Upper Shillong, Umsning, Umtham, Ummir, Ummulong, Umran, Umshing, Umroi, Umtyngar, Weiloi), *Jaintia hills* (Garrampani road, Jarain, Jowai, Khanduli, Nartiang, Shangpung, Thadlaskein).

Elsewhere : India : Assam.

Minimum-Maximum length reported so far : 7 mm 63 mm TL.

Remarks : Common hill stream fishes of Meghalaya occurring in almost all the streams and rivers of Khasi and Jaintia hills, could not be recorded so far from Garo hills. Restricted so far within Meghalaya and border areas of Assam.

Inhabits mainly hill streams.

Puntius sophore (Hamilton-Buchanan)

(Plate VIII, Figure 4)

Cyprinus sophore Hamilton-Buchanan, 1822 *Fishes of Ganges* : 310, 389, pl. 19, fig. 86 (Type locality : ponds and rivers in the Gangetic provinces).

Puntius sophore : Talwar and Jhingran, 1991, *Inland Fishes,* Vol. *1* : 288.

Local name : 'Shalynnai' (Khasi)

Material examined : 101 exs. (4 from Khasi hills, 6 from Jaintia hills, 91 from Garo hills)

Meristic data :

D. iii-iv.8-9, P.i.14-16, V.i.8, A.iii.5-6, C.19, L.l. 22-27, L.tr. 4-5/3-4, Predorsal scales 8-10, scales

around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills (Barapani, Cherrapunjee, Shella), Jaintia hills (Dawki), Garo hills (Bozengdoba, Damra, Damalgiri, Garobadha, Phulbari, Tura).

Elsewhere : India : Throughout India; Bangladesh; Burma; Nepal; Pakistan; Yunan.

Minimum-Maximum length reported so far : 55 mm 130 mm TL.

Remarks : Recorded mainly from lower altitude of Meghalaya; not very common in occurrence.

Puntius terio (Hamilton-Buchanan)

(Plate IX, Figure 1)

Cyprinus terio Hamilton-Buchanan, 1822, *Fishes of Ganges* : 313, 389 (Type locality : north east Bengal)

Puntius terio : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 290

Local name : "Shalynnai" (Khasi)

Material examined : 4 exs. (1 from Khasi hills, 2 from Jaintia hills 1 from Garo hills)

Meristic data :

D.iii.8, P.i.14, V.i.8, A.ii.5, C.19, L.l. 22-23, L.tr. 5/5, Predorsal scales 9, scales around caudal peduncle 10.

Distribution in Meghalaya : Khasi hills (Balat), Jaintia hills (Dawki) Garo hills (Dalu).

Elsewhere : India : Assam, West Bengal to Punjab, Orissal; Bangladesh; Pakistan.

Minimum-Maximum length reported so far : 30 mm 102 mm TL.

Remarks : Not very common in Meghalaya; recorded so far from lower altitude only.

Inhabits rivers and streams.

Puntius ticto (Hamilton-Buchanan)

(Plate IX, Figure 2)

Cyprinus ticto Hamilton-Buchanan, 1822, *Fishes of Ganges* : 314, 398, pl. 8, fig. 87 (Type locality : south eastern parts of Bengal)

Puntius ticto : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 291

Local name : 'Kha shalynnai" (Khasi)

Material examined : 51 exs. (22 from Khasi hills, 5 from Jaintia hills, 24 from Garo hills)

Meristic data :

D.iii-iv.8, P.i.12-14, V.i.8, A.ii-iii, 5-6, C.19, L.l. 23-25, L.tr. 4-6/4-5, Predorsal scales 8-11, scales around caudal peduncle 12.

Distribution in Meghalaya : Khasi hills (Barapani, Cherrapunjee, Shella, Mylliem), Jaintia hills (Dawki, Muktapur), Garo hills (Damalgiri, Damra, Garobadha, Mahadev, Remgiri, Songsak, Tura, Phulbari).

Elsewhere : India : Throughout India; Bangladesh; Burma; Nepal; Pakistan; Sri Lanka; Thailand.

Minimum-Maximum length reported so far : 35 mm 102 mm TL.

Remarks : Rarely occurring in Meghalaya; recorded mainly from lower altitude only.

Inhabits streams, rivers and ponds.

12. Genus *Tor* Gray

Tor Gray, 1834, *Illustrations of Indian Zoology 2* : 196. (Type species : *Cyprinus tor* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 301.

Key to the Species

1. Lateral line scales 32-37; width of head greater than its height; maxillary barbel about twice in eye-diameter.....*T. chelynoides*

   Lateral line scales 22-28; width of head less than its height; maxillary barbel equal to diameter of eye 2

2. Length of head considerably greater than body depth; lower fin yellowish. Dorsal and ventral profiles greatly arched.....*T. putitora*

   Length of head equal to or shorter than body depth; lower fins usually orange to red, snouth smooth, ventral profile more arched than dorsal; 2.5 rows of scales between leteral line and pelvic fin base .....*T. tor*

Tor chelynoides (McClelland)

(Plate IX, Figure 3)

Barbus chelynoides McClelland, 1839, *Asiat Res., 19*(2): 271, 340, p., l. 57, fig. 5 (Tyupe locality : Simla)

Tor chelynoides : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 302

Material examined : 1 ex. (Khasi hills)

Meristic data :

D.iii.7-8, P.i. 14-16, V.i. 8-9, A. ii.5, C.19, L.l. 32-37, L.tr. 4.5/5.5, Predorsal scales 11, scales around caudal peduncle 12.

Distribution in Meghalaya : Khasi hills (Nongkhlaw).

Elsewhere : India : Ganga river system, Himalayas as far east as Assam; Pakistan.

Minimum-Maximum length reported so far : 10 mm - 763 mm TL.

Remarks : Small, single specimen recorded for the first time from Meghalaya. Rarely occurring species.

Inhabits mainly rivers and streams also.

Tor putitora (Hamilton-Buchanan)

(Plate IX, Figure 4)

Cyprinus putitora Hamilton-Buchanan, 1822, *Fishes of Ganges* : 303, 388 (Type locality : eastern parts of Bangal)

Tor putitora : Talwar and Jhingran, 1991, *Inland Fishes,* Vol. *1* : 308.

Local name : "Kha Mahasur" (Khasi)

Material examined : 42 exs. (38 from Khasi hills, 4 from Garo hills)

Meristic data :

D. iii-iv,8-10, P.i. 16-17, V.i.8-9, A.ii.5-6, C.19, L.1. 25-29, L.tr. 3.5-4.5/2.5, Predorsal scales 13, scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills (Barapani, Lailad, Pynursla), Jaintia hills (Dawki), Garo hills (Rongram)

Elsewhere : India : All along the Himalayas including Kashmir; Afghanistan; Bangladesh; Nepal; Pakistan.

Minimum-Maximum length reported so far : 42 mm 2743 mm TL.

Remarks : Not very common in Meghalaya. Lateral line scales are generally more in Meghalayan population (27-29 var 25-28, Talwar & Jhingran, 1991)

Inhabits running streams and rivers.

Tor tor (Hamilton-Buchanan)

(Plate X, Figure 1)

Cyprinus tor Hamilton-Buchanan, 1822, *Fishes of Ganges* : 305, 388 (Type locality : Mahananda river, West Bengal)

Tor tor : Talwar and Jhingran, 1991, *Inland Fishes,* Vol. *1* : 309.

Local name : "Kha Mahasur" (Khasi)

Material examined : 5 exs. (3 from Khasi hills, 2 from Garo hills)

Meristic data :

D.iii-iv.8-9, P.i.14-17, V.i.8-10, A.ii-iii. 5-6, C. 19, L.1. 22-29, L.tr.3.5/2.5, Predorsal scales 12, scales around caudal poduncle 12.

Distribution in Meghalaya : Khasi hills (Barapnai), Jaintia hills, Garo hills (Rongram, Baghmara).

Elsewhere : India : Assam, North Bengal,Bihar, Uttar Pradesh, West Bengal, Madhya Pradesh, all along with Himalayas, Narbada river system; Bangladesh; Burma; China; Pakistan.

Minimum-Maximum length reported so far : 65 mm 1524 mm TL.

Remarks : Not very common in occurrance. Lateral line scales in Meghalayan population are more (27-29 var. 22-27, Talwar & Jhingran, 1991)

Inhabits running streams, rivers with rocky bottoms and reservoirs.

13. Genus ***Chela*** Hamilton-Buchanan

Chela Hamilton-Buchanan, 1822, *Fishes of Ganges* : 258, 383 (Type species :*Cyprinus (chela) cachius* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 312.

Key to the Species

1. Lateral line complete, anal fin with 17-23 branched rays..... 2

2. Scales in lateral line 51-58; small, much more numerous on body; predorsal scales 23-29. Outer ray of pelvic fin strongly produced, filamentous, usually extends as far back as posterior third of anal fin. Body silvery with brownish lateral band.....*C. cachius*

   Scales in lateral line 31-37; large, not many on body; predorsal scales 15-20. Outer fin ray of pelvic strongly produced. Body silvery with some golden vertical stripes during life. A black mark above base of pectoral fin and another at the base of the caudal..... *C. laubuca*

Chela cachius (Hamilton-Buchanan)

(Plate X, Figure 2)

Cyprinus (chela) cachius Hamilton-Buchanan, 1822, *Fishes of Ganges* : 259, 384 (Type locality : Ganges river about commencement of delta)

Chela cachius : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 313

Material examined : 6 exs. (Garo hills)

Meristic data :

D. ii.7-8. P.i.8-11, V.i.5-6, A.ii-iii. 18-23, C.19, L.1. 51-58, L.tr. 9-12/3-5, Predorsal scales 23-29, scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills, Garo hills (Garobadha, Tura)

Elsewhere : India : Throughout India; Bangladesh: Burma; Nepal; Pakistan.

Minimum-Maximum length reported so far : 38 mm 102 mm TL.

Remarks : Occurring mainly in lower altitude; not very common.

Inhabits flowing water.

Chela laubuca (Hamilton-Buchanan)

(Plate X, Figure 3)

Cyprinus (Chela) laubuca Hamilton-Buchanan, 1822, *Fishes of Ganges* : 260, 384 (Type locality : ponds in northern parts of Bengal).

Chela laubuca : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 316

Material examined : 1 ex. (Garo hills)

Meristic data :

D.ii.8-10, P.i.8-12, V.i.6, A.ii-iii, 17-21, C.19, L.1. 31-37 L.tr. 6-7/4-5, Predorsal scales 15-20, scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Damalgiri).

Elsewhere : India : Assam, West Bengal, Orissa, Madhya Pradesh, Andhra Pradesh; Bangladesh; Burma; Malaya Peninsula; Nepal; Pakistan; Sri Lanka; Sumatra.

Minimum-Maximum length reported so far : 48 mm 90 mm TL.

Remarks : Not very common in Meghalaya.

Inhabits streams, ponds and tank.

14. Genus *Salmostoma* Swainson

Salmostoma Swainson, 1839, *The natural history of fishes 2* : 184 (Type species : *Cyprinus bacaila* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *I* : 318.

Key to the Species

1. Lateral line scales above 70, body without vertical dark stripes on sides..... 2

2. Anal fin with 10-13 branched rays; L.tr. scales 17-19/4-6. Dorsal fin inserted well in advance of anal fin.....*S. bacaila*

   Anal fin with 17-19 branched rays; L.tr. scales 12-15/6. Dorsal fin inserted opposite to origin of anal fin.....*S. phulo*

Salmostoma bacaila (Hamilton-Buchanan)

(Plate X, Figure 4)

Cyprinus bacaila Hamilton-Buchanan, 1822, *Fishes of Ganges* : 265, 384; pl. 8, fig. 76 (type locality : freshwater rivers of gangetic provinces).

Salmostoma bacaila : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 321.

Material examined : 66 exs. (4 from Khasi hills, 2 from Jaintia hills, 60 from Garo hills)

Meristic data :

D.ii-iii. 7-8, p.i. 11-12, V.i.8, A.ii-iii, 10-13, C.19, L.l. 86-110, L.tr. 17-19/4-6, Predorsal scales 67, scales around caudal peduncle 24.

Distribution in Meghalaya : Khasi hills (Shella), Jaintia hills (Dawki, Muktapur), Garo hills (Baghmara, Bozengdoba, Dalu, Damalgiri, Damra, Garobadha)

Elsewhere : India : throughout India except Kerala, Karnataka and Tamilnadu; Bangladesh; Burma; Nepal; Pakistan.

Minimum-Maximum length reported so far : 71 mm 180 mm TL.

Remarks : The species has so far been recorded from lower altitude only. Inhabits slow running streams.

Salmostoma phulo (Hamilton-Buchanan)

(Plate XI, Figure 1)

Cyprinus phulo Hamilton-Buchanan, 1822, *Fishes of Ganges* : 262, 384 (Type locality : north eastern parts of Bengal)

Salmostoma phulo : Talwar and Jhingran, 1991, Inland Fishes, Vol. 1 : 326

Material examined : 2 exs. (Garo hills)

Meristic data :

D.ii-iii.7, P.i.12, V.i.7-8, A.ii-iii. 17-19, C.19, L.1. 99-112, L.tr. 12-15/6, Predorsal scales 62, scales around caudal peduncle 22-23.

Distribution in Meghalaya : Garo hills (tura)

Elsewhere India : Ganga and Brahmaputra river system; Bangladesh.

Mininim-Maximum length reported so far : 54 mm 130 mm TL.

Remark : Rarely occurring in Meghalaya.

Inhabits streams, ponds, beels and innundated fields.

15. Genus ***Securicula*** Gunther

Securicula Gunther, 1868, *Cat. fishes Br. Mus.* 7 : 332 (Type species : *Cyprinus gora* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes,* Vol *1* : 328.

Diagnostic Characters of Species

A strong symphysial knob on lower jaw with a corresponding notch on upper. Abdomen strongly and sharply keeled, scales very small; lateral line complete ..... *S. gora*

Securicula gora (Hamilton-Buchanan)

(Plate XI, Figure 2)

Cyprinus gora Hamilton-Buchanan, 1822, *Fishes of Ganges* : 263, 384 (Type locality : Ganga river and its tributaries).

Securicula gora : Talwar and Jhingran, 1991, Inland Fishes, Vol. 1 : 329

Local name : "Kha ilong" (Khasi)

Material examined : 2 exs. (1 from Khasi hills, 1 from Garo hills)

Meristic data :

D.ii-iii.7, P.i.12-13, V.i.7-8, A.ii-iii, 13-15, C.19, L.1. 120-160, L.tr. 18-19/18, Predorsal scales 95, scales around caudal peduncle 30.

Distribution in Meghalaya : Khasi hills (Cherrapunjee, Shella) Jaintia hills, Garo hills (Baghmara)

Elsewhere : India: Assam, West Bengal, Bihar, Orissa, North India; Bangladesh; Nepal; Pakistan.

Minimum-Maximum length reported so far : 135 mm 230 mm TL.

Remarks : Very rare in Meghalaya,occurring only in lower altitude (below 200 M alt.)

Inhabits tanks, beels, canals and rivers.

16. Genus ***Amblypharyngodon*** Bleeker

Amblypharyngodon Bleeker, 1860, Natuurk. tijdschr. Ned. Indie, 20 : 433 (type species : (*Cyprinus mola* hamilton-Buchanan); talwar and Jhingran, 1991, Inland Fishes, Vol. 1 : 334.

Diagnostic characters of Species

Lateral line scales 65-91, a silvery lateral band with dark markings on dorsal, anal and caudal fin. Body depth 3.5-3.8 in SL. Branched pectoral fin rays 13-15; 8-10 rows of scales between lateral line and pelvic fin base ..... *A. mola*

Amblypharyngodon mola (Hamilton-Buchanan)

(Plate XI, Figure 3)

Cyprinus mola Hamilton-Buchanan, 1822, *Fishes of Ganges* : 334, 392, pl. 38, fig. 92 (Type locality : ponds and rivers of Gangetic Provinces).

Amblypharyngodon mola : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 338.

Local name : "Kha muka" (Khasi)

Material examined : 218 exs. (11 from Khasi hills, 2 from Jaintia hills 205 from Garo hills)

Meristic data :

D.ii-iii.7, P.i.13-15, V.i.6-8, A.ii-iii, 5-6, C.19, L.1. 65-91, L.tr. 12/8-10, Predorsal scales 33-34, scales around caudal peduncle 28-30.

Distribution in Meghalaya : Khasi hills (Barapani, Nongpoh, Shella), Jaintia hills (Dawki), Garo hills (Damalgiri, Darugiri, Garobadha, Phulbari, Tura).

Elsewhere : India : Throughout India except Malabar; Bangladesh; Burma; Nepal; Pakistan.

Minimum-Maximum length reported so far : 28 mm 85 mm TL.

Remarks : Commonly occurring mainly from lower altitude.

Inhabits streams, ponds, reservoirs and rivers.

17. Genus ***Barilius*** Hamilton-Buchanan

Barilius Hamilton-Buchanan, 1822, *Fishes of Ganges* : 266 384 (Type species : *Cyprinus barila* Hamilton-Buchanan); Talwar and Jhingran 1991, *Inland Fishes*, Vol. *1* : 340.

Key to the Species

1. Barbels present 2

   Barbels absent 7

2. Four barbels..... 3

   Two barbels..... 6

3. Lateral line scales 56-7 4

   Lateral line scales 38-47 5

4. Lateral line scales 59-70, 12 vertical bands..... *B. shacra*

5. Anal fin short with 9-11 rays, each scale with a black spot in adult and 8-12 dark bands in young..... *B. bendelisis*

   Anal fin long with 13-17 rays; 10-14 vertical bars smaller and placed much above lateral line; pectoral fin slightly shorter than head..... *B.vagra*

6. Lateral line scales 42-46, 8-15 vertical bars long, extends from back to lateral line; pectoral fin as long as head. Usually two barbels, sometimes very short rostral pairs may be present..... ..... *B. barila*

7. Body without vertical bars; but with rows of spots; lateral line scales 65-75; maxilla extends to middle of orbit..... *B. tileo*

   Body with 7-11 vertical bars; rarely rudimentary barbels may be present; lateral line scales 39-42; maxilla extends to anterior third of orbit..... *B. barna*

Barilius barila (Hamilton-Buchanan)

(Plate XI, Figure 4)

Cyprinus (Barilius) barila Hamiton-Buchanan, 1822, *Fishes of Ganges* : 267-384 (Type locality : rivers of northern Bengal)

Barilius barila : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 343

Local name : "Kha ilong" (Khasi)

Materials examined : 5 exs. (Garo hills)

Meristic data :

D.ii. 7-8, P.i. 12-14, V.i.8, A.ii-iii, 8-11, C.19, L.l. 43-46, L.tr. 7/4.5, Predorsal 19-22, scales around caudal peduncle 14-16.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Damra, Tura, Wageasi, Williamnagar, Phulbari).

Elsewhere : India : Assam, Manipur, West Bengal, Bihar, Delhi, Jammu & Kashmir, Uttar Pradesh, Rajasthan, Orissa, Madhya Pradesh, Mysore; Bangladesh; Burma; Nepal.

Minimum-Maximum Length reported so far : 17 mm 115 mm TL.

Remarks : Not very common in Meghalaya like plains. Anal fin rays are less (2/8) than those occurring in plain region (3/10-11); 8-13 vertical bands are present in the middle third of the side of fish instead of 14-15 occurring inthe fishes of plain region.

Inhabits mainly hills streams and rivers.

Barilius barna (Hamilton-Buchanan)

(Plate XII, Figure 1)

Cyprinus (Barilius) barna Hamilton, Buchanan 1822, *Fishes of Ganges :* 268. 384 (Type locality : Yamuna river and Brahmaputtra river).

Barilius barna : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 344.

Local name : "Kha ilong" (Khasi)

Material examined : 60 exs. (13 from Khasi hills, 47 from Garo hills)

Meristic data :

D.ii. 7-8, P.i.13-14, V.i.8. ii-iii, 10-11, C.18-19, L.l. 39-42, L.tr. 8.5-9.5 4-5, Predorsal scales 15-16, scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills (Cherrapunjee, Shella), Jaintia hills, Garo hills (Amphangiri, Bahgmara, Phulbari, Rombagiri, Rongrengiri, Songsak, Damra, Tura).

Elsewhere : India : Assam, Manipur, West Bengal, Bihar, Orissa, Delhi Uttar Pradesh, Rajasthan, Madhya Pradesh, Karnataka; Bangladesh; Burma; Nepal.

Minimum-Maximum length reported so far : 12 mm 128 mm TL.

Remark : commonly occurring in lower altitude (below 500 M alt.)

Inhabits hill streams and rivers.

Barilius bendelisis (Hamilton-Buchanan)

(Plate XII, Figure 2)

Cyprinus bendelisis Hamilton, 1807, *Journey in Mysore*, *3* : 345, Pl. 32 (Type locality : Vedawati stream, headwaters of Krishna river near Heriuru, Mysore).

Barilius bendelisis : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 346.

Local name : "Kha ilong" (Khasi)

Material examined : 66 exs. (25 from Khasi hills, 41 from Garo hills)

Meristic data :

D.ii.7, P.i.13-14, v.i.8, A.ii-iii, 7-9, C.18-19, L.l. 40-47, L.tr. 7-8/3.5-5, Predorsal scales 18-21, scales around caudal peduncle 18.

Distribution in Meghalaya : Khasi hills (Balat, Shella), Jaintia hills, Garo hills (Bahgmara, Nangalbibra, Rombagiri, Rongrengiri, Siju, Songsak, Tura,Phulbari).

Elsewhere : India :Assam, Bihar, West Bengal, Uttar Pradesh, Rajasthan, Himachal Pradesh, Punjab, Orissa, Coimbatore, Palghat, Nilgiri, Tamil Nadu, Karnataka, Mettupalayam; Bangladesh; Nepal; Pakistan; Sri Lanka.

Minimum-Maximum length reported so far : 23 mm 155 mm TL.

Remarks : The species has been recorded so far from below 500 M alt. Meghalayan population

shows some variation in counting of anal fiin (2/9 var. 2-3/7-8), caudal fin (19 var. 18), lateral line scales (47 var. 40 43) and lateral transverse scales (7.5/3.5 var. 7-8/5).

Inhabits hill streams and rivers.

Barilius shacra (Hamilton-Buchanan)

(Plate XII, Figure 3)

Cyprinus (Barilius) shacra Hamiton, 1822, *Fishes of Ganges* : 271, 385 (Type locality : Kosi river, Uttar Pradesh).

Barilius shacra : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 351

Local name : "Kha ilong" (Khasi)

Material examined : Not collected by the author but reported from Meghalaya.

Meristic data :

D.ii.7, P.i.14, V.i.7-8, A.ii-iii, 8. C.19, L.1. 59-70, L.tr. 10-11/9, Predorsal scales 22-25, scales around peduncle 20.

Distritution in Meghalaya : Khasi hills

Elsewhere : India : Ganga, Yamuna and Brahmaputra river system; Bangladesh; Nepal.

Maximum length reported so far : 128 mm TL.

Remarks : Rarely occurring in Meghalaya.

Inhabits rivers and streams.

Barilius tileo (Hamilton-Buchanan)

(Plate XII, Figure 4)

Cyprinus tileo Hamilton Buchanan, 1822, *Fishes of Ganges* : 276, 385 (Type locality : Kosi river, Uttar Pradesh).

Barilius tileo : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 351.

Local name : "Kha ilong" (Khasi)

Material examined : 2 exs. (Garo hills)

Meristic data :

D.ii.7-8, P.i.13, Vi.8, A.ii-iii, 10.C. 19, L.1. 65-75, L.tr. 14/7, Predorsal scales 25-30, scales around caudal peduncle 18.

Distribution of Meghalaya : Garo hills (Dalu, Damra).

Elsewhere : India : Assam, Eastern Himalayas, West Bengal; Bangladesh; Nepal; Pakistan.

Minimum-Maximum length reported so far ; 113 mm 153 mm TL.

Remarks : Recorded so far from lower altitude of Garo hills only (below 500 M alt.); rarely occurring in Meghalaya.

Inhabits hill streams and rivers.

Barilius vagra (Hamilton-Buchanan)

(Plate XIII, Figure 1)

Cyprinus (Barilius) vagra Hamilton-Buchanan, 1822, *Fishes of Ganges* : 269, 385 (Type locality : Ganges river at Patna).

Barilius vagra : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 353

Material examined : Not collected by the author but reported from Meghalaya.

Meristic data :

D.ii-iii.7, P.i.14-15, V.i.8, A.ii-iii. 10-12, C.19, L.1. 38-44, L.tr. 7-8/4, Predorsal scales 21-26, scales around caudal peduncle 11-12.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills.

Elsewhere : India : Ganga, Yamuna and Brahmaputra river system; Afghanistan; Bangladesh; Nepal; Pakistan; Sri Lanka.

Maximum length reported so far : 128 mm TL.

Remarks : Rarely occurring in Meghalaya; though reported from Meghalaya, the author could not collect the species so far.

Inhabits hill streams and rivers.

18. Genus ***Bengala*** Gray

Bengala Gray, 1833, *Illustrations of Indian Zoology*, etc. 2 : 96 (Type species : *Cyprinus elanga* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 354.

Diagnostic Characters of Species

Body elongate, mouth very small; lower jaw with a prominent symphysical process; a short rostral pair of barbel present; caudal fin forked..... *B. elanga*

Bengala elanga (Hamilton-Buchanan)

(Plate XIII, Figure 2)

Cyprinus elanga Hamilton-Buchanan, 1822, *Fishes of Ganges* : 281, 386 (Type locality : rivers & ponds of Bengal)

Bengala elanga : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 354.

Local name : "Kha ilong" (Khasi)

Material examined : 1 ex. (Garo hills)

Meristic data :

D. ii-iii, 7-8, P.i.13-14, V. i.7-8, A. ii. 5-6, C-19, L.1. 40-44, L.tr. 8/6, Predorsal scales 16, scales around caudal peduncle 14.

Distribution in Meghalaya : Garo hills (Baghmara)

Elsewhere : India : Assam, West Bengal, Bihar, UttarPradesh; Bangladesh; Burma.

Minimum-Maximum length reported so far : 135 mm 204 mm TL.

Remarks : Rarely occurring in Meghalaya; so far recorded from below 200 M alt. of Garo hills only.

Inhabits rivers of plains.

19. Genus ***Brachydanio*** Weber & de Beaufort

Brachydanio Weber & de Beaufort, 1916, *Fishes Indo-Australian Archipelago, 3* : 85 (Type species : *Nuria albolineata* Blyth as a subgenus) : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 355.

Diagnostic character of species

Lateral line incomplete or absent. Two well developed rostral and maxillary pairs of barbels present; body with 4 well marked shining gold longitudinal bands from head to caudal fin..... *B. rerio*

Brachydanio rerio (Hamilton-Buchanan)

(Plate XIII Figure 3)

Cyprinus rerio Hamilton-Buchanan, 1822, *Fishes of Ganges* : 323, 390 (Type locality : Kosi river, Utter Pradesh)

Brachydanio rerio : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 360.

Local name: "Shalynnai" (Khasi)

Material examined : 4230 exs. (3220 from Khasi hills, 906 from Jaintia hills, 104 from Garo hills)

Meristic data :
D.ii.6-8, P.i.9-12, V.i.6, A.ii-iii. 12-13, c.19, L. l. 28-30, L.tr. 6/4, Predorsal scales 14-16, scales around caudal peduncle 10.

Distribution in Meghalaya : *Khasi hills* (Barapani, Balat, Byrnihat, Kyrdemkulai, Lailad, Mawpat, Mylliem, Mawryngkneng, Nongpoh, Nayabunglow, Patharkhama, Nongkhyllem, Sumer, Shillong, Umran, Umroi, Umtham, Umsning, Upper Shillong, Umsamlem), *Jaintia hills* (Dawki, Garrampani road, Muktapur, Nartiang, Shangpung, Thadlaskein, Umkiang, Khanduli, Passi, Jowai), *Garo hills* (Baghmara, Damra, Dainadubi, Dalrigiri, Damalgiri, Dalu, Garobadha, Phulbari).

Elsewhere: : India : throughout India; Bangladesh; Burma; Nepal; Pakistan.

Minimum-Maximum length reported so far 10 mm 51 mm TL.

Remarks : Common hill stream fishes of Meghalaya, occurring between the range 100 M 1900 M alt.

Inhabits streams and slow moving or stagnant water bodies particularly paddy fields.

20. Genus ***Danio*** Hamilton Buchanan

Danio Hamilton-Buchanan, 1822, *Fishes of Ganges* : 321, 390 (Type species : *Cyprinus dangila* Hamilton-Buchanan):: Talwar and Jhingran, 1991, *Inland fishes*, Vol. 1. : 362.

Key to the Species

1. Barbels absent 2

   Barbels present 3

2. Dorsal fin with 13-17 branched rays; lateral line scales 33-38 ..... *D. devario*

3. Lateral coloured bands breaking up anteriorly to form a net work..... 4

   Lateral coloured bands not breaking up anteriorly to form a net work..... 5

4. Two pairs of barbels well developed, much longer than eye-diameter. Lateral line scales 36-42 .. .. *D. dangila*

5. Two pairs of barbels shorter than eye diameter. Several well marked and uniform lateral bands. Lateral line scales 34-37 ..... *D. aequirpinnatus*

Danio aequipinnatus (McClelland)

(Plate XIII Figure 4)

Perilampus aequipinnatus McClelland, 1839, *Asiat Res.*, *19*(2) : 393, pl. 60, fig. 1 (Type locality : Assam)

Danio aequipinnatus : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 364.

Local name : "Shalynnai" (Khasi)

Material examined : 992 exs. (830 from Khasi hills, 4 from Jaintia hills, 158 from Garo hills)

Meristic data :

D.ii-iii, 9-12, P.i.10-12, V.i.6-7, A.ii-iii. 12-16, C.19, L.1. 34-37,L.tr. 7.5/2, 5-3, Predorsal scales 15, scales around caudal peduncle 14.

Distribution in Meghalaya : *Khasi hills* (Barapani, Balat, Cherrapunjee, Jakrem, Kyrdemkulai, Lailad, Mairang, Mawsmai, Mawblang, Mawkyrwat, Kyllang, Nongkhyllem, Nongpoh, Nongstoin, Patharkhama, Pynursla, Rambrai, Sonapahar, Syrkon, Sumer, Umsamlem, Umsning, Wah Mukhra, Shella, Umran, Umtham), *Jaintia hills* (Dawki, Jowai, Garrampani, Khliehriat, Khanduli, Umkiang), *Garo hills* (Anogiri, Darugiri, Dobasipara, Baghmara, Amphangiri, Damrang, Dalu, Garobadha, Rongram, Rongsangiri, Rombagiri. Songsak, Selbalgiri, Tura, Ganol river).

Elsewhere: : India : Throughout Bangladesh; Burma; Nepal; Sri Lanka; Thailand.

Minimum-Maximum length reported so far : 20 mm 152 mm TL.

Remarks : Common hill stream fishes occurring abundantly in Khasi hills than Jaintia and Garo hills. Generally finrays are less in numbers in relation to those from plain region.

Inhabits hill streams mainly.

Danio dangila (Hamilton-Buchanan)

(Plate XIV Figure 1)

Cyprinus dangila Hamilton-Buchanan, 1822, *Fishes of Ganges* : 321, 390 (Type locality : mountain streams of Mongher, Bihar)

Danio dangila : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 366.

Local name : "Shalynnai" (Khasi)

Material examined : 1430 exs. (1148 from Khasi hills, 197 from Jaintia hills, 85 from Garo hills)

Meristic data :
D.ii-iii. 8-10, P.i. 10-12, V.i.6-7, A.ii-iii. 11-15, C.19, L.l. 36-42, L.tr. 7/4.5, Predorsal scales 12-14, scales around caudal peduncle 14.

Distribution in Meghalaya : *Khasi hills* (Barapani, Cherranpunjee, Jakrem, Kyrdemkulai, Mawkynrew, Mawphlang, Mawlyndep, Mawsmai, Mairang, Mylliem, Sumer, Shillong, Shillong Peak, Umsning, Umroi, Umtyngar, Umran, Umshing, Weiloi, Nongstoin), *Jaintia hills* (Dawki, Jarain, Jowai, Garrampani road, Muktapur, Nartiang, Thadlaskein), *Garo hills* (Darugiri, Garobadha, Rongram, Rongrengiri, Songsak, Songkhama)

Elewhere : India : Assam, Arunachal Pradesh, Eastern Himalayas, Manipur, Madhya Pradesh, Nagaland, West Bengal, Bihar, Uttar Pradesh; Bangladesh; Burma; Nepal.

Minimum-Maximum length reported so far : 20 mm- 153 mm TL.

Remarks : Common hill stream fishes occuring throughout Meghalaya between 100-1900 M alt. Paired and median finrays are usually less in number in relation to those occuring in plains.

Inhabits mountain streams.

Danio devario (Hamilton-Buchanan)

(Plate XIV, Figure 2)

Cyprinus devario Hamilton-Buchanan, 1822, *Fishes of Ganges* : 341, 393, pl. 6, fig. 94 (Type locality : rivers and ponds of Bengal)

Danio devario : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 367.

Local name : "Shalynnai" (Khasi)

Material examined : 13 exs. (5 from Khasi hills, 8 from Garo hills)

Meristic data :
D.ii-iii. 13-17, P.i. 11-13, V.i.7, A.ii-iii. 14-17, C.19, L.l. 33-38, L.tr. 9-10/3-4, Predorsal scales 13-17, scales around caudal peduncle 14-16.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Baghmara, Phulbari, Garobadha, Tura)

Elsewhere : India : Assam, West Bengal, Eastern Himalayas, Western Himalayas, Eastern Punjab, Uttar Pradesh, Bihar, Orissa, Madhya Pradesh, Ahmedabad, Krishna-Godavari river system, Deccan; Bangladesh; Burma; Nepal; Pakistan.

Minimum-Maximum lenghth reported so far : 42 mm 102 mm TL.

Remarks: The only *Danio* species occurring below 200 m. alt. only. The other species of the genus are very common in higher as well as lower altitude.

Inhabits mainly streams and rivers of plains.

21. Genus *Esomus* Swainson

Esomus Swainson, 1839, *The natural history of fishes*, 2 : 185, 285 (Type species : *Esomus vittatus* Swainson = *Cyprinus danrica* Hamilton-Buchanan): Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1:373.

Diagnostic characters of Species

Lateral line incomplete or absent; piercing only 4-6 scales anteriorly. Sides with a broad lateral dark band. 14 scales around caudal peduncle. No precaudal spot ..... *E. danricus*

Esomus danricus (Hamilton-Buchanan)

(Plate XIV Figure 3)

Cyprinus danrica Hamilton-Buchanan, 1822, *Fishes of Ganges* : 325, 390, p. 16, fig. 88 (Type locality : ponds and ditches of Bengal)

Esomus danricus : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 377

Local name : "Shalynnai" (Khasi)

Material examined : 163 exs. (24 from Khasi hills, 5 from Jaintia hills, 134 from Garo hills)

Meristic data :

D..ii.6-7, P.i.12-15, V.i.6-7, A.iii. 5-6, C.19, L.l. 27-30, L.tr. 5-6/3, Predorsal scales 16-18, scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills (Barapani, Balat, umtham), Jaintia hills (Dawki, Muktapur), Garo hills (Baghmara, Rewak, Garobadha, Dalu, Damalgiri, Phulbari, Rongram).

Elsewhere : India : Throughout India; Bangladesh; Burma; Malaya; Nepal: Pakistan; Sri Lanka; Thailand; South Vietnam (Mekong Basin)

Minimum-Maximum length reported so far : 32 mm 128 mm TL.

Remarks : Not very common in Meghalaya. Paired and median finrays are usually less in fishes from higher altitude than those occurring in plain region.

Inhabits ponds and weedy ditches, slowmoving rivers and streams.

22. Genus *Parluciosoma* Howes

Parluciosoma Howes, 1980, *Bull. Br. Mus. nat. Hist.* (Zool.), *37*(3) : 183(Type species : *Leuciscus argyrotaenia* Bleeker); Talwar and Jhingran, 1991 *Inland Fishes*, Vol. 1 : 381.

Diagnostic Characters Of Species

Body oblong, compressed. Barbels absent;mouth small, lips simple. Pectoral fin shorter than head; lateral line nearly complete with 31-34 scales ..... *P. daniconius*

Parluciosoma daniconius (Hamilton-Buchanan)

(Plate XIV Figure 4)

Cyprinus daniconius Hamilton-Buchanan, 1822, *Fishes of Ganges* : 327, 391, pl. 15, fig. 89 (Type locality : rivers of southern Bengal)

Parluciosoma daniconius : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 382.

Local name : "Khailong" (Khasi)

Material examined : 13 exs. (4 from Khasi hills, 1 from Jaintia hills, 8 from Garo hills)

Meristic data :

D.ii.7, P.i. 12-14, V.i.8, Aii-iii, 5, C. 19, L.l. 31-34, L.tr. 4.5/2.5, Predoral scales 14, scales around caudal peduncle 12-14.

Distribution in Meghalaya : Khasi hills (Barapani, Umtham, R. Umsot), Jaintia hills (Dawki, Muktapur), Garo hills (Damalgiri, Phulbari, Tura).

Elsewhere: India : Throughout India; Bangladesh; Burma; Malaya; Malaya Archipelago; Nepal; Pakistan; Srilanka; Thailand; Zangiber.

Minimum-Maximum length reported so far : 39 mm 204 mm TL.

Remark : Not very common in Meghalaya; recorded from both higher and lower altitude.

Inhabits pools, ditches and streams.

23. Genus ***Raiamas*** Jordan

Raiamas Jordan, 1918, *Proc. Acad. nat. Sci. Philad., 70* : 344 (Type species : *Cyprinus bola* Hamilton-Buchanan) ; Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1. 384.

Diagnostic Characters Of Species

Body slender, greatly compressed. Barbels absent in adults; a rudimentary maxillary pair in juveniles. Lateral line complete with 85 95 small scales..... *R. bola*

Raiamas bola (Hamilton-Buchanan)

(Plate XV, Figure 1)

Cypprinus bola Hamilton-Buchanan, 1822, *Fishes of Ganges* : 274, 385 (Type locality : Brahmaputra river).

Raiamas bola : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 384.

Local name : "Kha ilong" (Khasi)

Material examined : 2 exs. (Garo hills)

Meristic data :

D. iii. 7-8, P.i.12, V.i.8, A.iii.10, C.19, L.l. 85-95, L. tr. 12-15/5.6, Predorsal scales 40, scales around caudal peduncle 28.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Baghmara).

Elsewhere : India : Assam, Bihar, West Bengal, Uttar Pradesh, Punjab, Rajasthan, Orissa; Bangladesh; Burma; Nepal; Pakistan.

Minimum-Maximum length reported so far : 240 mm 305 mm TL.

Remarks : The species is rarely occurring in Meghalaya below 200 M alt. only. Though reported from Khasi and Jaintia hills the author could collect the same from Garo hills so far.

Inhabits streams and rivers.

24. Genus ***Rasbora*** Bleeker

Rasbora Bleeker, 1860, *Acta Soc. Sci. Indo-Neerl.*, *7* : 435 (Type species : *Cyprinus rasbora* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 386.

Diagnostic characters of species

Anal fin with 5 branched rays, lateral line complete with 26-29 scales; caudal fin with a well-defined black hind margin. Barbels absent. Dorsal fin inserted behind origin of pelvic fin. Deeply emarginate caudal fin.....*R. rasbora*

Rasbora rasbora (Hamilton-Buchanan)

(Plate XV, figure 2)

Cyprinus rasbora Hamilton-Buchanan, 1822, *Fishes of Ganges* : 329, 391, pl. 2, fig. 90 (Type locality : ponds of Bengal)

Rasbora rasbora : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 390

Local name : "Kha ilong" (Khasi)

Material examined : 1 ex. (Garo hills)

Meristic data :

D.ii.7, P.i.14, V.i.8, A.ii-iii.5, C.19, L.l. 26-29, L.tr. 4.5/2-3, Predorsal scales 13, scales around caudal peduncle 8-9.

Distribution in Meghalaya: Garo hills (Damalgiri)

Elsewhere : India : Gangetic provinces and Coromandal coast, Freshwaters of all the Indian States; Bangladesh; Burma; Pakistan; Thailand.

Minimum-Maximum length reported so far : 40 mm 130 mm TL.

Remarks : Rarely occurring in Meghalaya; so far recorded from Garo hills only.

Inhabits streams and rivers.

25. Genus ***Crossocheilus*** Kuhl et van Hasselt

Crossocheilus Kuhl et van Hasselt, 1823, *Algemeine Konst. en Letter-Bode*, 2(35) : 132 (Type species :

Crossocheilus oblongus Kuhl et van Hasselt); Talwar and Jhingran, 1991, *Inland Fishes,* Vol. 1 : 413.

Diagnostic Characthers Of Species

Body elongated. Dorsal fin with 8 branched ray; Maxillary and rostral pair of barbels present; rostral barbels short, often rudimentary. Lateral line with 37-43 scales; eye-diameter 3.2-4.7 in head length... ..... *C. latius latius*

Crossocheilus latius latius (Hamilton-Buchanan)

(Plate XV Figure 3)

Cyprinus latius Hamilton-Buchanan, 1822, *Fishes of Ganges* : 345, 393 (Type locality : Tista river at base of Darjeeling Himalayas).

Crossocheilus latius latius : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 416.

Material examined : 8 exs. (Garo hills)

Meristic data :

D.ii-iv.8, P.i.13-14, V.i.8, A.ii.5, C.19, L.l. 37-43, L. tr. 6.5/4.5, Predorsal scales 11, scales around caudal peduncle 16.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Baghmara, Phulbari)

Elsewhere : India : Assam, Manipur, West Bengal, Bihar, Uttar Pradesh, Gangetic Watershed of Himalayas, Orissa, Karnataka, Bombay, Western Ghat, Kaimur hills; Bangladesh; Burma; Nepal; Pakistan.

Minimum-Maximum length reported so far : 35 mm 204 mm TL.

Remark : Not very common in Meghalaya; recorded both from higher and lower altitude.

Inhabits streams and rivers.

26. Genus ***Garra*** Hamilton-Buchanan

Garra Hamilton-Buchanan, 1822, *Fishes of Ganges* : 343, 309 (Type species : *Cyprinus lamta* Hamilton-Buchanan) : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 416.

Key to the Species

1. Proboscis present..... 2

   Proboscis absent..... 3

2. Proboscis trilobed, 2 pairs of barbels present..... *G. nasuta*

   Proboscis a single projection without lateral lobes but with well defined lateral tubercular area. Body depth less than 5 times in standard length ..... *G. gotyla gotyla*

3. Lateral line scales 34 or fewer..... 4

   Lateral line scales 35-40 9

4. Tip of snount marked off by a transverse groove. A dark lateral band bordered above and below by light pale stripes especially in the posterior region present 5

   Tip of snout not marked off by a transverse groove. A Pale lateral band without any lateral stripes present 6

5. Distance of vent from base of anal fin more than 4 times but less than 5 times in that between anterior origin of pelvic and anal fins ..... *G. lamta*

6. Dorsal fin with a light black bar across and caudal fin with broad W shaped band 7

   Dorsal and caudal fins without such marking 8

7. Back and posterior pelvic region scaled; pectoral fin equals or slightly longer than head ..... *G. lissorhynchus*

   Back and posterior pelvic region naked, pectoral fin shorter than head ..... *G. rupecula*

8. Distance between vent to anal fin 2.62-3.21 in that between origin of pelvic and anal fins. Caudal peduncle length 1.0-1.4 in HL ..... *G. annandalei*

9. Dorsal fin inserted dintinctly nearer tip of snout than base of caudal fin; lateral line scales 35-38. ..... *G. mcClellandi*

   Dorsal fin inserted almost midway between tip of snout and base of caudal fin. Back scaled, lateral line scales 38-40 10

10. Vent situated almost midway between anterior origin of anal fin and pelvic fin ..... *G. kempi*

    Vent not situated midway between anterior origin of anal fin and pelvic fin ..... *G. naganensis*

Garra annandalei Hora

(Plate XV, Figure 4)

Garra annandalei Hora, 1921, *Rec. Indian Mus., 22* (5) : 657 (Type locality : Mahananda river below Darjeeling)

Garra annandalei : Talwar and Jhingran, 1991 *Inland Fishes,* Vol. 1 : 419

Local name : "Doh jei" (khasi)

Material examined : 5 exs. (3 from Khasi hills, 2 from Jaintia hills)

Meristic data :

D.iii.7-8, P.i-ii. 12-14, V.i.7-8, A.ii.5, C.19, L.l. 33-34, L.tr. 4-4.5/4.0-4.5, Predorsal scales 9-12, scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills (Kyrdemkulai, Sumer), Jaintia hills (Umkiang)

Elsewhere : India : Assam, Bihar, Darjeeling himalayas, North Bengal; Bangladesh; Eastern Nepal.

Minimum -Maximum length reported so far : 82 mm- 230 mm TL.

Remarks : Hill stream fish occurring above 1000 M alt. only; not recorded from lower altitude so far. Not commonly available like *lissorhynchus* or *naganensis*.

Inhabits streams.

Garra gotyla gotyla (Gray)

(Plate XVI Figure 1)

Cyprinus gotyla Gray, 1832, *Illustr, Indian Zool., 1* : pl. 88, fig. 3.3a (Type locality : Northern India)

Garra gotyla gatyla : Talwar and Jhingran, 1991 *Inland Fishes*, Vol. 1 : 421.

Local name : "Kha kulai" (Khasi)

Material examined : 10 exs. (5 from Khasi hills, 5 from Garo hills)

Meristic data :

D.iii.7-9, *p*.i-ii, 14-15, V.i.8, A.ii5-6, C.19, L.1. 32-35, L.tr. 4.5/ 3.5-4.5, Predorsal scales 9-11, scales around caudal peduncle 14.

Distribution in Meghalay a : Khasi hills (Barapani), Jaintia hills, Garo hills (Ganol riv., Wegeasi)

Elsewhere : India : Assam, Darjeeling All along the Himalayas, Simla, UttarPradesh, Punjab, Chota Nagpur, Vindhya, Satpura mountains of the Indian peninsula; Bangladesh; Burma; Nepal; Pakistan.

Minimum-Maximum length reported so far : 90 mm -204 mm TL.

Remarks : Hill stream fishes occurring both in higher (above 1000 M.) and lower (below 600 M) altitude. Of course in lower altitude their occurrence is rare. Not commonly occurring in Meghalaya. Maximum length reported earlier was 152 mm, but present collection include fish of 204 mm TL.

Inhabits mainly hill streams.

Garra kempi Hora

(Plate XVI , Figure 2)

Garra kempi Hora 1921, *Rec. Indian Mus., 22*(5) : 665, pl. 26, fig. 3 3a (Type locality : Siyom river below Demda, Abor hills, Arunachal Pradesh).

Garra Kempi : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 425

Material examined : 96 exs. (Khasi hills)

Meristic data :

D.ii.8, P.i.12, V.i.7, A.ii.5, C.19, L.1.38-40, L.tr. 4.5/3.5, Predorsal scales 12-14, scales around caudal peduncle 14.

Distribution: *in Meghalaya* : Khasi hills (Nongstoin, Syrkon)

Elsewhere : India : Naga hills, Arunachal Pradesh.

Minimum-Maximum length reported so far : 30 mm 110 mm TL.

Remarks : Occurring commonly in higher altitude. So far recorded from Khasi hills only.

Inhabits hill streams.

Garra lamta (Hamilton-Buchanan)

(Plate XVI Figure 3)

Cyprinus (Garra) lamta Hamilton-Buchanan, (Partim), 1822, *Fishes of Ganges* : 343, 393 (Type locality : Rapti river, Gorakhpur, Uttar Pradesh)

Garra lamta : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 426.

Local name : "Doh jei" (Khasi)

Material examined : 12 exs. (2 from Khasi hills, 10 from Garo hills)

Meristic data :

D.iii.7-8, P. i-ii. 12-13, V.i. 7-8, A. ii.5, C.19, L.1.31-34, L.tr. 4.5/4.5, Predorsal scales 8-12, scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills (Barapani, Lailad), Garo hills (Rongram, Selbalgiri)

Elsewhere: India : Assam, Darjeeling, Kumaon Himalayas, Sikkim; Abyssinia; Aden; Nepal; Pakistan; Sri Lanka; Syria; Tenasserim Province.

Minimum Maximum length reported so far : 27 mm 204 mm TL.

Remarks : Not very common in Meghalaya; recorded from higher and lower altitude.

Inhabits hill streams.

Garra lissorhynchus (McClelland)

(Plate XVI, Figure 4)

Platycara lissorhynchus McClelland, 1843, *Calcutta J. nat. Hist., 2* : 587, pl. 68 (Type locality : Khasi hills, Meghalaya)

Garra lissorhynchus : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 427.

Local name : "Kha Kulai" (Khasi)

Material examined : 226 exs. (Khasi hills)

Meristic data :

D. ii. 6-7, P. i-ii, 12-15, V.i. 7-8, A. i-ii.5, C.19, L.1. 32-34, L.tr. 3-5. 4.5/2.5-3.5, predorsal scales 11-15,scales around caudal peduncle 12.

Distribution in Meghalaya : Khasi hills (Barapani, Shillong, Mawkodok), Jaintia hills.

Elsewhere : India : Assam, Himalayas, Brahmaputra river system.

Minimum- Maximum length reported so far : 35 mm- 75 mm TL.

Remarks : Most commonly available hill strem fishes of Khasi hills. Mostly occurring in higher altitude only. Its occurrence throughout the year in the market is noteworthy. Not recorded so far from

Garo hills.

Inhabits hill streams.

Garra mcC lellandi (Jerdon)

(Plate XVII Figure 1)

Gonorhynchus mcClellandi Jerdon, 1849, *Madras J. Lit. Sci., 15* : 309 (Type locality : Bowany river and Manantoddy river at base of Nilgiris)

Garra mcClellandi : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 428.

Local name : "Doh jei" (Khasi)

Material examined : 13 exs. (Khasi hills)

Meristic data :

D.ii-iii. 8, P.i-iv. 12-15, V.i.8, A. i-ii. 5, C. 19, L.1. 35-38, L.tr. 4.5/3.5, Predorsal scales 8-13, scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills (Barapani)

Elsewhere : India : Arunachal Pradesh, Nilgiri, Wynaad, Cauveri river.

Minimum Maximum length reported so far : 62 mm 175 mm TL.

Remarks : Rare in occurrene, Recorded for the first time from Khasi hills (above 1000 M. alt.). Pectoral and pelvic fins are more well spread than other species. Length of pectoral fin is larger than head length. Though it is south Indian species, it is interesting to note that it has been reported earlier from Arunachal Pradesh and at present from Khasi hills.

Inhabits hill streams.

Garra naganensis Hora

(Plate XVII Figure 2)

Garra naganensis Hora, 1921, *Rec. Indian Mus., 22*(5) : 667, pl. 25, figs. 2.2a (Type locality : near Kairong, Nagahills, Nagaland)

Garra naganensis : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 430

Local name : "Doh jei" (Khasi)

Material examined : 82 exs. (75 from Khasi hills, 3 from Jaintia hills, 4 from Garo hills)

Meristic data :

D.ii-iii. 7-8, P.i-iv. 11-12, V. :. 7-8, A. i-ii. 5-6, C. 19, L.1. 38-40, L.tr. 4.5/4.5, predorsal scales 12-14, scales around peduncle 14.

Distributio in Meghalaya : Khasi hills (Barapani, Umran, Mairang), Jaintia hills (Garrampani road, Jowai), Garo hills (Rongrengiri Rongsangiri)

Elsewhere: India : Assam, Nagaland.

Minimum Maximum length reported so far : 30 mm 192 mm TL.

Remarks : Commonly available but not so common like *lissorhynchus*. Maximum length reported so far was 104.5 mm TL but the present collection include specimen of 192 mm TL.

Inhabits hill streams.

Garra nasuta (McClelland)

(Plate XVII Figure 3)

Platycara nasuta McClelland, 1839, *J. Asiat. Soc. Bengal*, 7(2) : 947, pl. 55, figs. 2.2a, 2b (Type locality : khasi hills Meghalaya)

Garra nasuta : Talwar and Jhingran, 1991 *Inland Fishes*, Vol. 1 : 430.

Local name : "Doh jei" (Khasi)

Material examined : 9 exs. (5 from Khasi hills 4 from Garo hills)

Meristic data :

D.ii.8-9, P.i-ii. 13-14, V.1. 7-8, A. i-ii. 5, C. 19, L.1. 33-34, L.tr. 4.5/3.5, Predorsal scales 9-11, scales around caudal peduncle 12.

Distribution in Meghalaya : Khasi hills (Barapani), Jaintia hills, Garo hills (Ganol river, Rongrengiri, Siju).

Elsewhere: India : Assam, Arunachal Pradesh; Burma; Indo-China; South China; Vietnam.

Minimum Maximum length reported so far : 125 mm 146 mm TL.

Remarks : Not very common in Meghalaya.

Inhabits mainly hill streams.

Garra rupecula (McClelland)

(Plate XVII Figure 4)

Gonorhynchus rupeculus McClelland, 1839, *Asiat. Res., 19* : 281, 343, pl. 43, fig. 4, 5 (Type locality : Mishmi hills, Arunachal Pradesh)

Garra rupecula : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 432.

Local name : "Kha kulai" (Khasi)

Material examined : 5 exs. (Khasi hills)

Meristic data :

D.ii.6-7, P.i-ii, 12-15, V.i.7-8, A.ii.4-5, C.19, L.1. 32-34, L. tr. 3.5-5.5/3.5-4.5, Predorsal scales 14, scales around caudal peduncle 12.

Distribution in Meghalaya : Khasi hills (Upper Shillong, Mawsmai)

Elsewhere : India : Assam, Manipur, Mishmi hills (Arunachal Pradesh)

Minimum-Maximum length reported so far : 25 mm 65 mm TL.

Remarks : Not very common. Occurring together with *lissorhynchus*. Recorded so far from Khasi hills only.

Inhabits hills streams.

Diagnostic characters of Genus of Family Psilorhynchidae

Body greatly arched dorsally and flattened ventrally. Ventral surface of head markedly flattened. Mouth small and inferior with a projecting snout, lips fleshy. Barbels absent, eyes large. Dorsal fin inserted slightly in advance of pelvic fin with 10-12 rays; anal fin short with 5 branched rays. Pectoral fin with 4-9 unbranched rays. Pelvic fin with 9 rays. Lateral line complete with 31-50 scales..... .....***Psilorhynchus***

27. Genus ***Psilorhynchus*** McClelland

Psilorhynchus McClelland, 1839. *Asiat. Res., 19* : 300, 428 (Type species : *Cyprinus sucatio* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 437.

Key to the Species

1. Branched dorsal fin rays 7..... 2

   Branched dorsal fin rays 8 (rarely 9)..... 4

2. Abdomen fully scaled; unbranched pectoral finrays 4. Body spindle shaped, eyes large, lateral in position.....*P. sucatio*

   Abdomen naked; unbranched pectoral finrays 6-10. Body not spindle shaped, eyes small, dorso lateral in position..... 3

3. Unbranched pectoral finray 7 or 8. Total lateral line scales 42-44, abdomen smooth..... .....*P. homaloptera*

4. Unbranched pectoral finrays 6 or 7 (rarely 5) or more; ventral surface behind pectoral fin with irregular distribution of scales. Lateral line with less than 40 scales..... *P. balitora*

Psilorhynchus balitora (Hamilton-Buchanan)

(Plate XVIII, Figure 1)

Cyprinus balitora Hamilton-Buchanan, 1822, *Fishes of Ganges* : 348, 394 (Type locality : rivers of N. E. Bengal)

Psilorhynchus balitora : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 438.

Local name : "Doh thang" (Khasi)

Material examined : 47 exs. (11 from Khasi hills, 36 from Garo hills)

Meristic data :

D.ii-iii.8, P.v-vii, 7-9, V.i-ii. 7-8, A.ii.5, C.19, L.l. 30-34, L. tr. 3.5-4. 5/2. 5-3.5, Predorsal scales 9-10, scales around caudal peduncle 8.

Distribution in Meghalaya : Khasi hills (Barapani), Garo hills (Baghmara, Goka, Rewak river, Rongram, Rongrengiri, Songsak).

Elsewhere : India : Assam, West Bengal, North Bengal, Delhi, Uttar Pradesh; Bangladesh; Burma; Nepal.

Minimum-Maximum length reported so far : 31 mm 75 TL.

Remarks : Not very common in Meghalaya. Mainly occurring in lower altitude of Garo hills. The maximum length reported so far was 64 mm TL. The present collection contains specimens of 75 mm TL.

Inhabits hill streams and shallow rivers with rocky bottom.

Psilorhynchus homaloptera Hora and Mukherji

(Plate XVIII, Figure 2)

Psilorhynchus homaloptera Hora and Mukherji (partim), 1935, *Rec. Indian Mus. 37*(3) : 391, pl.7, figs. 1-6 (Type locality : Emilomi, Naga hills, Nagaland.

Psilorhynchus homaloptera : Talwar and Jhingran, 1991, *Inland Fishes*. Vol. *1* : 441.

Local name : "Doh thang" (Khasi)

Material examined : 73 exs.(68 from Khasi hills, 5 from Garo hills)

Meristic data :

D.ii.7, P.vii-viii, 8-9, V.i-ii.7, A.ii.5, C.19, L.1. 42-44, L. tr. 3.5/3.5, Predorsal scales 14-15, scales around caudal peduncle 10.

Distribution in Meghalaya : Khasi hills (Barapani), Garo hills (Tura, Williamnagar).

Elsewhere : India : Assam, North East Bengal, Nagaland; Burma; Nepal.

Minimum-Maximum length reported so far : 20 mm 120 mm TL.

Remarks : Commonly occurring in higher altitude of Khasi hills, less common in Garo hills.

Inhabits hill streams.

Psilorhynchus sucatio (Hamilton-Buchanan)

(Plate XVIII, Figure 3)

Cyprinus sucatio Hamilton-Buchanan, 1822, *Fishes of Ganges* : 347, 393 (Type locality : rivers of North Bengal)

Psilorhynchus sucatio : Talwar and Jhingran, 1991, *Inland Fishes*. Vol. 1 : 442.

Local name : "Doh thang" (Khasi)

Material examined : 1 ex. (Garo hills)

Meristic data :

D.ii.7, P.iv.8-9, V.i-ii, 7-8, A.ii.5, C.18, L.1. 34-37, L. tr. 3.5/3, Predorsal scales 10, scales around caudal peduncle 10.

Distribution in Meghalaya : Garo hills (Baghmara)

Elsewhere : India : Eastern Himalayas, Ganga river system in Uttar Pradesh, Bihar, Darjeeling; Bangladesh.

Minimum-Maximum length reported so far : 52 mm 83 mm TL.

Remarks : Rarely occurring in Meghalaya. Recorded so far from lower altitude of Garo hills only.

Inhabits primarily the edges of sandy stream with emergent or overhanging vegetation.

Key to the Genera of Family Balitoridae

1. Pectoral and pelvic fins inserted horizontally; atleast 2 rays of pectoral fin simple..... 2

   Pectoral and pelvic fins not inserted horizontally; outermost ray of pectoral fin simple 3

2. Rostral barbels 4, arranged in one row; 8-10 outer pectoral rays simple..... ***Balitora***

3. Vent placed far forward; pelvic fins extends considerably beyond anal opening. Scales small and elliptical; lateral line incomplete and indistinct..... ***Aborichthys***

   Vent placed much nearer to anal fin; pelvic fin do not extend to anal opening. Scales minute (rerely absent), lateral line complete or incomplete..... ***Nemacheilus***

28. Genus ***Balitora*** Gray

Balitora Gray, 1830, *Illustrations of Indian Zoology, 1* : pl, 88, fig. 1. (Type species : *Balitora brucei* (Gray); Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 445.

Diagnostic characters of Species

Body depressed. Head length 4.8-5.4 times in standard length; caudal peduncle 3-4.2 times longer than deep; Pectoral fin do not extend or just reach pelvic fin; caudal fil lobes unequal, lower lobe the longer. Lateral line scales more than 60..... *B. brucei*

Balitora brucei Gray

(Plate XVIII, Figure 4)

Balitora brucei Gray, 1830, *Illustrations of Indian Zoology, 1* : pl. 88, fig. 1 (Type locality : Priang river near Cherrapunjee, Meghalaya)

Balitora brucei : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 446.

Material examined : 1 ex. (Garo hills)

Meristic data :
D.iii.8, P.ix-x, 10-12, V.ii.9-10, A.ii-iii.5, C.17, L.1. 61-70,L. tr. 10/7.

Distribution in Meghalaya : Khasi hills, Garo hills (Someswari river)

Elsewhere : India : Assam, Darjeeling, Madras; Bangladesh; Bhutan; Pegu; Tenasserim.

Minimum-Maximum length reported so far : 82 mm 105 mm TL.

Remarks : Though the type locality is Khasi hills, the species could not be collected from this locality inspite of great effort. Single specimen could be collected from Garo hills only.

Inhabits torrential hill stream and rivers with rocey bed.

29. Genus *Aborichthys* Choudhuri

Aborichthys Choudhuri, 1913, *Rec. Indian Mus. 8*(3) : 244 (Type species : *Aborichthys kempi* Choudhuri) : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 ; 456.

Key to the Species

1. Vent situated equidistant between tip of snout and base of caudal fin or slightly nearer to snout tip..... 2

   Vent situated distinctly nearer to base of caudal fin than tip of snout..... 3

2. Body depth 6.4-7.1 times in standard length, eye-diameter 6-7.2 in hea dlength; body with 30-35 black forked shaped bands. Caudal fin dull grey with dark black margin posteriorly..... .....*A. garoensis*

3. Body marked with several broad black rings alternating with narrow yellowish bands especially in posterior part. Barbels about as long as eye diameter; caudal fin dusky with whitish margin and tow short whitish band in the middle.....*A. elongatus*

   Body marked with oblique black stripes; indistinct in posterior third of body; barbels much longer than eye diameter; caudal fin banded with two broad black concentric curves.....*A. kempi*

Aborichthys elongatus Hora

(Plate XIX, Figure 1)

Aborichthys elongatus Hora, 1921, *Rec. Indian Mus. 22*(5) : 735 (Type locality : Reang river, base of Darjeeling Himalayas).

Aborichthys elongatus : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 457.

Material examined : 1 ex. (Garo hills)

Meristic data :
D.ii-iii.7, P.i.9-10, V.i.7, A.i-ii,5. C.18.

Distribution : Garo hills (Damalgiri)

Elsewhere : India : Darjeeling Himalayas.

Minimum-Maximum length reported so far : 50 mm 96 mm TL.

Remark : Rarely occurring in Meghalaya.

Inhabits streams.

Aborishthys garoensis Hora

(Plate XIX, Figure 2)

Aborichthys garoensis Hora, 1925, *Rec. Indian Mus. 27*(3) : 233, figs. 1a, 1b (Type locality : Tura, Garo hills, Meghalaya)

Aborichthys garoensis : Talwar and Jhingran, 1991, Inland Fishes, Vol. 1 : 458.

Material examined : Not collected by the author but reported from Meghalaya.

Meristic data :
D.iii.7, P.i.10, V.i.6, A.ii.5, C.18.

Distribution : Garo Hills.

Elsewhere : So far not reported from other places.

Minimum-Maximum length reported so far : 25 mm 105.5 mm TL.

Remark : Rarely occurring species; so far reported from Garo hills only. Most probably this is a restricted species.

Inhabits streams.

Arborichthys kempi Choudhuri

(Plate XIX, Figure 3)

Aborichthys kempi Choudhuri, 1913, *Rec. indian Mus.,8*(3) : 245, pl. 7, Aborichthy kempi Chaudhuri, 1913, R'c. Indian Mus., 8(3) : 245, pl. 7,

Aborichthys kempi : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 458.

Material examined : 14 exs. (Garo hills)

Meristic data :

D.ii-iii.7, P.i.10, V.i.6-7, A. ii. 5, C.16-18.

Distribution : Garo hills (Rongram, Thabrongiri, Chinabot)

Elsewhere : India : Arunanchal Pradesh, Assam; Upper Burma.

Minimum-Maximum length reported so far : 40 mm TL.

Remark : Not very commonly occurring in Meghalaya; recorded so far from Garo hills only.

It is interesting to note that in Meghalaya all the three species of *Aborichthys* have so far been recorded and reported from Garo hills only. Since these are not recorded so far from Khasi and Jaintia hills, it can be concluded that the genus in Meghalaya is restricted to the particular region only.

Inhabits streams.

30. Genus ***Nemacheilus*** Bleeker

Noemacheilus Kuhl et van Hasselt, 1823, *algemeine Konst en Letter-Bode*, 2(35) : 133 (Type species : *Noemacheilus fasciatus* Kuhl et van Hasselt) (*Nomennudum vide* Kottelat, 1987, *Jap. J. Ichthyol.*, 33(4) : 371).

Nemacheilus Bleeker, 1863, *Ned. Tijdschr. Dierk. Indie, I* : 365 (Type species : *Cobitis fasciata* Valenciennes); Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *I* : 460.

Key to the Species

1. Caudal fin truncate or slightly emerginate; a black ocellus at upper margin of base of caudal fin base 2

   Caudal truncate, emarginate or forked; no ocellus at upper margin of caudal fin base 3

2. Lateral line complete; dorsal fin with 9-11 branched rays; body slender, its depth about 5 times in standard length. Nasal barbel not well developed; caudal fin with 7 irregular bars bent an angle ..... *N. botia*

3. Body marked with a series of vertical bands 4

   Body not marked with a series a series of vertical bands 17

4. Dorsal fin with 9 or 10 branched rays 5

   Dorsal fin with less than 9 branched rays 6

5. Dorsal fin with 9 branched rays; caudal fin deeply emerginate. Complete lateral line; body marked with 9 or 10 narrow yellowish bands. A vertical black band at caudal fin base. Dorsal and Anal fin marked with black dots in middle. Caudal fin often with 1 or 2 V shaped bands ..... *N. savona*

6. Dorsal fin with 8 branched rays 7

   Dorsal fin with 7 branched rays 16

7. Caudal fin truncate, body marked with 14-16 vertical black bands broader than interspaces. Dorsal and caudal fin with rows of spots ..... *N. multifasciatus*

   Caudal fin not truncate 8

8. Caudal fin emarginate 9

   Caudal fin forked 10

9. Caudal fin slightly emarginate. Dorsal fin inserted nearer base f caudal than snout tip; lateral line incomplete. Body marked with 6 saddle shaped bands extending only to middle of side of body. Lateral line ending abovepelvic fin ..... *N. devdevi*

10. Body spotted; a ray of pectoral fin geatly elongated ..... *N. corica*

    Body banded 11

11. Lateral line complete 12

    Lateral line incomplete 13

12. Body with bands; bands anterior to dorsal fin not coalesced; 6-9 broad black bands broader than interspace; dorsal fin with one and caudal fin with two bands ..... *N. beavani*

13. Lateral line extending only upto middle of body 14

Lateral line extending beyond middle of body terminating above middle of anal fin..... 15

14. Lateral tine terminating below dorsal fin; 9-14 black bands broader than interspace, extending from back to ventral surface..... *N. elongatus*

15. Body banded with 12-13 regular bands, separated by equal numbers of slightly narrower white ones .....*N. sikmaiensis*

16. Caudal fin forked. Lateral line complete, body marked with 11 bands across lateral line interspaced with narrow short bands from above. Dorsal and caudal fin spotted.....*N. scaturigina*

17. Body marked with irregular net of dark brownish and whitish yellow bars and stripes; a median small dark bar at base of caudal fin. Anal opening placed at a distance about 2 times in interdistance between pelvic and anal fin. Dorsal fin with less than 10 branched rays..... 18

18. Lateral line complete; body marked with 8-10 bands across back broken up into secondary bands below lateral line.....*N. sijuensis*

    Lateral line incomplete, ending below dorsal fin or slightly in front of it; several irregular V or Y shaped cross bars on body.....*N. reticulofasciatus*

Nemacheilus beavani Gunther

(Plate XIX, Figure 4)

Nemacheilus beavani Gunther, 1868, *Cat. Fishes Br. Mus.*, 7 : 350 (Type locality : Kossye river, Uttar Pradesh)

Nemacheilus beavani : Talwar and Jhingran, 1991, *Inland Fishes,* Vol. *1* : 472.

Material examined : 1 ex. (Jaintia hills)

Meristic data :
D.iii. 8, P.i.10, V.i.7, A.ii.5, C.19.

Distribution : Garo hills, Jaintia hills.

Elsewhere : India : Himalayas, North Bengal, Uttar Pradesh; Nepal.

Minimum-Maximum length reported so far : 21 mm 42 mm TL.

Remark : Rarely occurring species in Meghalaya.

Inhabits torrential stream.

Nemacheilus botia (Hamilton-Buchanan)

(Plate XX, Figure 1)

Cobitis botia Hamilton-Buchanan, 1822, *Fishes of Ganges* : 350, 394 (Type locality : rivers of north eastern parts of Bengal).

Nemacheilus botia : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. 1 : 472

Local name : "Doh Sher" (Khasi)

Material examined : 17 exs. (7 from Khasi hills, 4 from Jaintia hills, 6 from Garo hills)

Meristic data :

D.ii-iii. 9-11, P.i.9-11, V.i.7, A.ii-iii.5, C.17-18, L.1. 107-110, L. tr. 16/12, Predorsal scales 55-60, scales around caudal peduncle 50-52.

Distribution : Khasi hills (Cherrapunjee, Shella), Jaintia hills (Dawki, Muktapur, Umkiang), Garo hills (Baghmara, Phulbari).

Elsewhere : India : Throughout India except Malbar coast and south of river Krishna; Bangladesh; Burma; Nepal; Pakistan; Srilanka.

Minimum-Maximum length reported so far : 40 mm - 91 mm TL.

Remark : Commonly occurring in lower altitude of Meghalaya.

Inhabits slowmoving streams and rivers.

Nemacheilus corica (Hamilton-Buchanan)

(Plate XX, Figure 2)

Cobitis corica Hamilton-Buchanan, 1822, *Fishes of Ganges* : 359, 395 (Type locality : Kosi river)

Nemacheilus corica : Talwar and Jhingran, 1991, *Inland Fishes*, Vol. *1* : 476

Material examined : Not collected by the author but reported from Meghalaya.

Meristic data :

D.ii-iii.8, P.i.10-12, V.i.7, A.ii.5, C.17.

Distribution : Khasi hills, Garo hills.

Elsewhere : India : Assam, all along the Himalayas, Punjab; Bangladesh; Nepal; Pakistan.

Minimum-Maximum length reported so far : 29 mm 42 mm TL.

Remark : Though reported from Meghalaya, the species is most probably rare in occurrence in this region.

Inhabits streams and canals.

Nemacheilus devdevi Hora

(Plate XX, Figure 3)

Nemacheilus montanus (nec McClelland) Day (partim), 1878, *Fishes of India* : 616 (Teesta river, North Bengal).

Nemachilus devdevi Hora, 1935, *Rec. Indian Mus.* 37(1) : 54, pl. 3, figs. 5 and 6 (Type locality : small streams below Darjeeling and in Sikkim, Eastern Himalayas).

Nemacheilus devdevi : Talwar and Jhingran, 1991, *Inland Fishes* Vol *1* : 478

Material examined : 41 exs. (Garo hills)

Meristic data :

D.ii-iii.8, P.i.18, V.i.6-7, A.ii.5, C.16-17.

Distribution : Garo hills (Anogiri)

Elsewhere : India : Darjeeling, Eastern Himalayas, Sikkim.

Minimum-Maximum length reported so far : 18 mm - 45 mm TL.

Remark : Not very common in occurrence; recorded so far from Garo hills only.

Inhabits streams.

Nemacheilus elongatus (Sen and Nalbant)

(Plate XX, Figure 4)

Physoschistura elongata Sen and Nalbant, 1981, *Trav. Mus. Hist. nat. Grigore Antipa 23* : 210 fig. 17 (Type locality : Barapani, Khasi hills, Meghalaya)

Nemacheilus elongatus : Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* : 479.

Local name : "Doh Sher" (Khasi)

Meristic data :
D.iii.8, P.i.9-10, V.i.6, A.ii.5, C.18-19.

Distribution : Khasi hills (Barapani).

Elsewhere : Restricted so far within Meghalaya only.

Minimum-Maximum length reported so far : 21 mm 58 mm TL.

Remarks : The species is recorded so far from Khasi hills only. Maximum length reported so far was 32.5 mm. But the present collection include specimen with 58 mm TL.

Inhabits streams with rocky bottom.

Nemacheilus multifasciatus Day

(Plate XXI, Figure 1)

Nemacheilus rupicola (nec McClelland) Day (*partim*), 1878, *Fishes of India*: 616 (*nec* pl. 153, fig. 9)

Nemacheilus multifasciatus Day (*partim*), 1878, *Fishes of India* : 617, pl. 153, fig. 7 (Type locality : Darjeeling and Assam).

Nemacheilus multifasciatus : Tarwal and Jhingran, 1991, *Inland Fishes* Vol. *1* : 490.

Local name : "Doh Sher" (Khasi)

Material examined : 175 exs. (156 from Khasi hills, 19 from Garo hills)

Meristic data :
D.ii.8, P.i.10-11, V.i.7-8, A.i-ii.5, C.16.

Distribution in Meghalaya : Khasi hills (Barapani, Cherrapunjee, Lailad, Mawkod, Pynursla, Shillong, Sumer, Umran, Umtyngar), Jaintia hills (Garrampani road), Garo hills (Rongram, Songsak, Rewak).

Elsewhere : India : Eastern Himalayas from Tista through the base of Nepal Himalayas, as far as

the Ghaghra and Kali drainages, Nagaland; Nepal.

Minimum-Maximum length reported so far : 41 mm 98 mm TL.

Remarks : The species identified so long as rupicola from N. E. India has been synonimised with multifasciatus by Menon (1987). According to him rupicola is a Western Himalayas species and multifasciatus which is very close to rupicola is Eastern Himalayan species.

Commonly available in Meghalaya, recorded both from lower and higher altitude.

Inhabits slow moving streams and rivers.

Nemacheilus reticulofasciatus (Singh & Banarescu)

(Plate XXI, Figure 2)

Mesonoemacheilus reticulofasciatus Singh and Banarescu, 1981, *Trav. Mus. Hist. nat. "Grigore Antipa" 23* : 206, fig. 12 (Type locality : Barapani, Khasi hills, Meghalaya)

Nemacheilus reticulofasciatus : Talwar and Jhingran, 1991, *Inland Fishes* Vol. *1* : 498.

Local name : "Doh Sher" (Khasi)

Material examined : 23 exs. (20 from Khasi hills, 3 from Garo hills).

Meristic data :
D.iii.7, P.i.9, V.i.6-7, A.ii-iii.5, C.17-19.

Distribution in Meghalaya : Khasi hills (Barapani, Lailad, Umran), Jaintia hills, Garo hills (Anogiri, Rongram, Songsak, Tura).

Elsewhere : Restricted so far within Meghalaya only.

Minimum-Maximum length reported so far : 25 mm 50 mm TL.

Remarks : Commonly occurring in Meghalaya. Maximum length reported earlier was 38 mm TL. The present collection contains specimen with 50 mm TL.

Inhabits hill streams.

Nemacheilus savona (Hamilton Buchanan)

(Plate XXI, Figure 3)

Cobitis savona Hamilton-Buchanan, 1822, *Fishes of Ganges* : 357, 394 (Type locality : Kosi river at Nathpur, Uttar Pradesh).

Nemacheilus savano : Talwar and Jhingran, 19991, *Inland Fishes* vol. *1* : 501.

Material examined : 79 examples (55 from Khasi hills, 24 from Jaintia hills).

Meristic data :
D.ii-iii.9, P.i.8-9, V.i.6, A.ii.5, C.199-20.

Distribution in Meghalaya : Khasi hills (Nongkhlaw, Nongkhyllem Shella), Jaintia hills (Dawki, Jowai, Muktapur, Umkiang).

Elsewhere : India : Widely distributed in Eastern sub-Himalayan region, North Bengal; Bangladesh; Nepal.

Minimum-Maximum length reported so far : 20 mm 32 mm TL.

Remarks : Occurring generally in lower altitude only.

Inhabits slow moving stream and river.

Nemacheilus scaturigina (McClelland)

(Plate XXI, Figure 4)

Cobitis schistura scaturigina McClelland, 1839, *Asiat. Res. 19* : 308, 443, pl. 53, fig. 6, Type locality : Assam.

Nemacheilus scaturigina Talwar and Jhingran, 1991, *Inland Fishes* vol. *1* : 501.

Material examined : 4 examples (Garo hills)

Meristic data :
C.ii-iii. 7, P. i.9, V.i.7, A.i-ii. 5, C.19.

Distribution in Meghalaya : Garo hills (Rongram, Siju, Thabrongiri).

Elsewhere : India : Assam, Eastern Himalayas, Darjeeling, Uttar Pradesh; Nepal.

Minimum Maximum length reported so far : 21 mm 51 mm TL.

Remarks : Not very commonly occurring in Meghalaya.

Inhabits streams.

Nemacheilus sijuensis (Menon)

(Plate XXII, Figure 1)

Noemacheilus sijuensis Menon, 1987, *Fauna of India*, Pisces, *4* : 175, pl. 6, fig. 2 (Type locality : Siju cave, Garo hills, Meghalaya).

Nemacheilus sijuensis : Talwar and Jhingran, 1991, *Inland Fishes* vol. *1* : 503.

Material examined : Not collected by the author but reported from Meghalaya.

Meristic data :

D.ii.7, P.i.10, V.i.7, A. ii. 5, C.18.

Distribution in Meghalaya : Garo hills.

Elsewhere : Restricted so far within Meghalaya only.

Remarks : So far recorded from Garo hills only; not commonly occurring.

Nemacheilus sikmaiensis Hora

(Plate XXII, Figure 2)

Nemacheilus cheilus sikmaiensis Hora, 1921, *Rec. Indian Mus.* 22 (3) : 201, pl.9, fig. 4 and pl. 10, figs. 1 1a

(Type locality: Sikmai stream, near Patel, Manipur)

Nemacheilus sikmaiensis : Talwar and Jhingran, 1991, Inland Fishes vol. 1 : 504.

Material examined : 25 examples (18 from Khasi hills, 6 from Jaintia hills, 1 from Garo hills).

Meristic data :
D.ii.8, P.i. 10-11, V.i.7, A.ii.5, C.18-19.

Distribution in Meghalaya : Khasi hill (Barapani, Kyrdemkulai), Jaintia hills (Dawki, Garrampani road, Jowai, Nartiang), Garo hills (Baghmara).

Elsewhere : India : Manipur ; Burma.

Minimum - Maximum length reported so far : 24 mm 75 mm TL.

Remarks : : Not very common in Meghalaya.

Inhabits streams.

Key to the Genera of Family Cobitidae

1. Two pairs of rostral barbels; caudal fin deeply forked .....2.

   One pair of rostral barbel (rarely absent); caudal fin usually rounded or slightly emarginate .....3.

2. Body oblong, short, moderately deep; abdomen rounded. Eyes moderately large without any skin cover; a bifid erectile sub orbital spine below or in front of eye.....***Botia***

3. Dorsal fin inserted in posterior half ofbody; well behind pelvic fin base. Head scaleless, lateral line absent .....***Pangio***

   Dorsal fin inserted in middle of body, in advance over or slightly behind pelvic fin base; lateral line present or absent. Head may or may not be with scales.....4.

4. Scales on sides of head present ; lateral line absent Eyes small not bulging Ventral surface of body not flattened .....***Lepidocephalus***

   Scales on sides of head absent ; lateral line present. Eyes large, bulging Ventral surface of body flattened Dorsal fin inserted behind origin of pelvic fin ..... ***Somileptes***

31. Genus ***Lapidocephalus*** Bleeker

Lepidocephalus Bleeker, 1859, *Nat. Tijdschr. Ned.- Indie 16* : 303 (Type species : *Cobitis macrochir* Bleeker); Talwar and Jhingran 1991, *Inland Fishes* vol. *1* : 520.

Key to the Species

1. Scales present on vertex or top of head. Dorsal and pelvic fins inserted in second half of body.... .....*L. irrorata*

   Scales absent on dorsal side of head. Dorsal and pelvic fins inserted in first half of body ..... 2.

2. Caudal fin forked or deeply emarginate; lateral and ventral side of head scaled; dorsal fin equidistant between tip of snout and caudal fin base. Rectangular blotches along lateral side of

body. ..... *L. caudofurcatus.*

Caudal fin convex, truncate or slightly emarginate; lateral and ventral side of haed naked.....3.

3. 40 scales between back of body and anal fin base ; mandibular flap produced posteriorly into 3 or more distinct, short barbel like extensions pectoral fin with 8-10 rays..... .....*L. berdmorei*

25 -37 scales between back of body and anal fin base ; mandibular flap usually not produced posteriorly into barbel like extensions; pectoral fin with 7 or 8 rays.....4.

4. Caudal fin notched or concavely lunate, with 3 oblique faint bands on each side of midline; two very dark spots (encircled in white ring) on caudal fin, one above midline of base of caudal fin and second at notch ..... *L.annandalei*

Caudal fin convex, truncate or slightly emarginate; bands on caudal fin if present not oblique and in form of rows of dark spots. One dark spot only on caudal fin placed slightly above middle of base of caudal fin. Body depth 5.8-6.8 in TL. Dorsal fin inserted slightly behind pelvic fin origin..... *L.guntea*

Lepidocephalus annandalei (Chaudhuri)

(Plate XXII figure 3)

Lepidocephalichthys annandalei Chaudhuri, 1912, *Rec. Indian Mus. 7*: 422, pl. 40, figs. 3,3a,3b, (Type locality : Tista river near Jalpaiguri and Mahananda river at Siliguri).

Lepidocephalus annandalei : Talwar and Jhingran, 1991, *Inland Fishes* vol. 1 : 522.

Local name: "Sher Syngkai" (Khasi)

Material examined: 12 examples (Garo hills)

Meristic data: :
D.i-ii. 6-7, P.i.6-7, V.i.6, A.ii.5-6. C.16.

Distribution in Meghalaya : Khasi hills, Garo hills (Baghmara, Damra, Phulbari).

Elsewhere : India : Teesta river system, North Bengal.

Minimum Maximum length reported so far; 26mm 42mm TL.

Remarks : Not very common ; recorded so far from lower altitude only (Below 300 M.)

Inhabits slowmoving streams and rivers.

Lepidocephalus bermorei (Blyth)

(Plate XXII Figure 4)

Acanthorsis berdmorei Blyth 1860, *Proc. Asiat. Soc. Bengal, 29* :168 (Type locality : Tenasserim Province, Burma)

Lepidocephalus berdmorei : Talwar & Jhingran, 1991, *Inland Fishes vol. 1* : 523.

Local name : "Sher Syngkai" (Khasi)

Material examined : 7 exampies (Khasi)

Meristic data::
D.ii-iii. 6-7, p.i.7-9, v. i-ii, 5-6, A.ii 5-6., C.16.

Distribution in Meghalaya : Khasi hills (Barapani, Mawpat), Garo hills.

Elsewhere : India : Manipur : Burma.

Minimum Maximum length reported so far : 34 mm 59 mm TL..

Remarks : Not very common Meghalaya.

Inhabits slowmoving streams, rivers and ditches.

Lepidocephalus caudofurcatus Tilak & Hussain.

(Plate XXIII Figure 1)

Lepidocephalus caudofurcatus Tilam & Hussain, 1978, *Matsya* (3) : 60, figs. 1-3 (Type locality : Kalapani nala, Rishikesh, District Dehradun, Silani river near Beharigarh District Saharanpur and Ganga river naear Moradabad District Moradabad, Uttar Pradesh)

Lepidocephalus caudofuracatus : Talwar & Jhingran 1991 *Inland Fishes* vol. *1* : 523.

Material examined: 12 examples (Jaintia hills).

Meristic data :
D.ii. 6. P. i.7, V. i.6, A. iii.5, C. 16.

Distribution in Meghalaya : Jaintia hills (Dawki, Muktapur)

Elsewhere : India : Assam, Brahmaputra river, Uttar Predash, Doon valley.

Minimum Maximum length reported so far : 35 mm. 40 mm TL.

Remarks : Not very common in Meghalaya, recorded so far from Jaintia hills only.

Inhabits streams.

Lepidocephalus guntea (Hamilton Buchanan)

(Plate XXIII Figure 2)

Cobitis guntea Hamilton Buchanan, 1822, *Fishes of Ganges* : 353, 394 (Type locality : ponds and freshwaters of Bengal).

Lepidocaphalus guntea : Talwar and Jhingran, 1991 *Inland Fishes* vol. *1* : 525.

Local name : "Sher Syngkai" (Khasi)

Material examined : 625 examples (404 from Khasi Hills 135 from Jaintia hills 86 from Garo hills).

Meristic data::
D. ii-iii. 6-7, P.i. 6-7, V.i.6-7, A.ii-iii, 5-6, C. 15-17, L.1.122-126, L.tr.16/12.

Distribution in Meghalaya : Khasi hills (Barapani, Balat, Cherrapunjee, Kyrdemkulai, Jakrem., Langiong, Mairang, Mawphlang, Mawpat, Mylliem, Mawkynrew, Nongpoh, Nongstoin, Nongkhlaw, Rambrai Shella, Shillong, Sumer, Sohiong, Umtyngar, Umsning, Umaran, Weiloi), Jaintia hills(Dawki Jowai, Garampani road, Muktapur, Umkiang) Garo hills (Dalu, Damalgiri, Damra, Darugiri, Garobadha, Phulbari, Rongram, Rongjeng, Songsak, Williamnagar).

Elsewhere : India : Throughout India except Karnataka, Kerala and south of Krishna; Bangladesh; Nepal ; Pakistan ; Thailand.

Minimum Maximum length reported so far : 25 mm 150 mm. TL.

Remarks : Common in occurrence : recorded both from higher and lower a altitude.

Inhabits flowing or even clear standing water.

Lepidocephalus irrorata Hora

(Plate XIII, Figure 3)

Lepidocephalichthys irrorata Hora *Rec. Indian Mus. 22*: 196, pl. 9. figs. 5, 5a, 5b, (Type locality : Loktak lake, Manipur).

Lepidocephalus irrorata : Talwar and Jhingran, 1991, *Inland Fishes* vol. 1 : 526.

Material examined : Not collected by the author from Meghalaya but reported earlier from this region.

Meristic data::
D. ii-iii, 6-7, P.i. 6-7, V.i.6. A.ii-iii, 5 C. 15-16.

Distribution in Meghalaya:

Elsewhere : India : Manipur, Assam.

Maximum length reported so far : 34 mm. TL.

Remarks : Though the species could be collected from other places of N.E. India, it could not be collected from Meghalaya so far by the author. Not very common in occurrence.

Inhabits streams.

32. Genus ***Pangion*** Blyth

Pangio Blyth 1861, *J. Asiat. Soc. Beng.* 29 : 169 (Type shpecies ; *Cobitis Cinnamomeum* Mc Clelland = *C. pangia* Hamilton Buchanan) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. *1* : 530.

Diagnostic Characthers Of Species

Body very elongated, strongly compressed. Pelvic fins with 6 or 7 rays; head length 7-8 times in standard length ; lips thick lower lips with 2 contiguous prolongations but no leaflike lobes; lateral line absent ..... *P. pangia.*

Pangio pangia (Hamilton Buchanan)

(Plate XXIII Figure 4)

Cobitis pangia Hamilton - Buchanan. 1822, *Fishes of Ganges* : 355, 394 (Type locality : N.E. Bengal).

Pangio pangia : Talwar and jhingran, 1991 , *Inland Fishes* vol. *1* : 531.

Material examined : 5 examples (Khasi hills)

Meristic data::

D.ii.6, P.i, 9-10, V.i.5-6, A. ii, 5-6, C. 17.

Distribution in Meghalaya : Khasi hills (Shella)

Elsewhere : India : Manipur, North East Bengal ; Bangladesh; Burma; Indonesia.

Minimum Maximum length reported so far : 30 mm 65 mm TL.

Inhabits slowmoving streams and rivers , prefers muddy bottom.

33. Genus ***Somileptes*** Swainson

Somileptes Swainson 1839, *Natural History Animals,* Fishes, 2 : 311 (Type Species : *Somileptes bispinosa* Swainson = *Cobitis gongota* Hamilton Buchanan) ; Talwar and Jhingan, 1991, *Inland Fishes* vol. 1 : 532.

Diagnostic Characters Of Species

Body elongated, cylindrical. Head swollen, wider than deep; snout rather long, Eyes large, bulging. Mouth narrow and inferior. Upper lip thickly papilated. Dorsal inserted nearer to caudal fin base than to snout tip..... *S. gongota.*

Somileptes gongota (Hamilton Buchanan)

(Plate XXIV Figure 1)

Cobitis gongota Hamilton Buchanan, 1822, *Fishes Of Ganges* : 351, 394 (Type locality : rivers of N. Bengal towards Himalaya).

Somileptes gongota : Talwar and Jhingran, 1991, *Inland Fishes* vol. *1*

Local name : " Doh Sher " (Khasi)

Material examined : 25 examples (17 from Khasi hills, 2 from Jaintia hills, 6 from Garo hills).

Meristic data :

D. ii-iii. 7-8, p. i. 9-10, V.i.6, A.ii5, C.16. L.i.145, L.tr. 20/16, Predorsal scales 16, Scales around caudal peduncle 40.

Distribution in Meghalaya : Khasi hills (Balat, Shella), Jaintia hills (Dawki), Garo hills (Garobadha Phulbari, Tura, (Wageasi).

Elsewhere : India : Assam, Utar Pradesh, North Bengal ; Bangladesh.

Minimum Maximum length reported so far : 990 mm 132 mm TL.

Remarks : So far the species is recorded from altitude of Maghalaya, not very common in

occcurrence, Maximum length reported so far was 100 mm; but the present collection include specimen with 132 mm TL.

Inhabits hill streams with muddy bottom.

34. Genus ***Betia*** Gray

Botia Gray 1831, *Zool. Misc., 8* (Type species : *Botia almorhae* Gray) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 1 : 533.

Key to the species

1. a pairs of barbles (Four rostrals united at their bases, 2 maxillary and 2 mental 1 obes)..... 2
2. Snout considerably longer than remaining part of head; pectoral fin, pelvic fin and anal fin conspicuously striped with brownish cross bars..... *B.rostrata*

   Snout about equal to or generally shorter than remaining part of head. .....3.
3. Eyes placed almost in posterior half of head..... 4

   Eyes not situated in posterior half of head .....6.
4. Head and body marked with broad verticalbands or reticulations; caudal peduncle tapers posteriorly.....5.
5. Dorsal fin origin nearer base of caudal fin than tip of snout..... *B. histrionica*

   Dorsal fin origin almost equal from snout tip and caudal fin base eyes moderately large, its diameter about 3 times in snout length..... ***B. dario***
6. Suborbital spine shorter, not extending to below posterior edge of orbit ; body with a series of Y-shaped markings..... *B. lohachata*

Botia dario (Hamilton Buchman)

(Plate XXIV, figure 2)

Cobitis dario Hamilton Buchanan, 1822, *Fishes of Ganges* : 354, 394, pl. 29, fig. 95 (Type locality : northern rivers of Bengal)

Botia dario : Talwar and Jhingran, 1991. *Inland Fishes* vol. *1*

Local name : "Kha Syiem" (Khasi)

Material examined : 13 examples (4 from Khasi hills, 1 from Jaintia hills, 8 from Garo hills)

Meristic data :

D.iii. 9-11, P.i.13-14, V.i.7, A.ii, 5-6, C.19.

Distribution in Meghalaya : Khasi hills (Shillong), Jaintia hills (Dawki), Garo hills (Dalu, Phulbari, Rongrengiri, Siju)

Elsewhere : Assam, N. Bengal, Bihar, W. Bengal, Uttar Pradesh, Punjab, Rajmahal hills; Bangladesh ; Pakistan.

Minimum Maximum length reported so far : 58mm 90mm TL.

Remarks : Not commonly occurring species ; recorded mainly from lower altitude.

Inhabits slow moving streams.

Botia histrionica Blyth

(Plate XXIV, Figure 3)

Botia histrionica Blyth, 1861, *J. Asiat. Soc. Beng., 29* : 166 (Type locality : Pegu, Burma).

Botia histrionica : Talwar and Jhingran, 1991, *Inland Fishes* vol.1 : 539.

Material examined : Not collected by the author but reported from Meghalaya.

Meristic data :
D.ii.8. P.i.14, V.i.7, A.ii.5, C.19.

Distribution in Meghalaya : Garo hills.

Elsewhere : India : Assam, Manipur, Uttar Pradesh, Burma.

Maximum length reported so far : 120 mm. TL.

Remarks : Rarely occurring in Meghalaya.

Inhabits hill streams.

Botia lohachata Choudhuri

(Plate XXIV, Figure 4)

Botia lohachata Choudhuri, 1912, *Rec. Indian Mus.*, 7(5) : 441, pl. 40, figs. 2, 2a, 2b (Type locality : Sandak river at Saran, Bihar)

Botia lohachata : Talwar and Jhingran, 1991, *Inland Fishes* vol. 1 : 539

Material examined : 5 examples 9Khasi hills)

Meristic data :

D.i. 9-10, P.i. 13, v.i.13, V.i.8, A.i. 5-6, C.19.

Distribution in Meghalaya : Khasi hills.

Elsewhere : India : Ganga river system : Bangladesh ; Nepal; Pakistan.

Mininum Maximum length reported so far : 50 mm. 100 mm. TL.

Remarks : Rarely occurring in Meghalaya.

Inhabits streams and rivers.

Botia rostrata Gunther

(Plate XXV, Figure 1)

Botia rostrata Gunther, 1868, *Cat. Fishes Br. Mus.*, 7 : 367 (Type locality : Ganges river in Bengal).

Botia rostrata : Talwar and Jhingran, 1991, *Inland Fishes* vol. *1* : 540.

Local name : "Kha Syiem" (Khasi)

Material examined : 2 examples (Garo hills)

Meristic data :
D.iii.9, P.i-ii, 12-13, V.i.7, A.ii.5-6, C.19.

Distribution in Meghalaya : Khasi hills, Garo hills (Rongrengiri)

Elsewhere : India : Assam, West Bengal, Darjeeling, Punjab, Himalayas, Ganges, Yamuna and Sone river system; Bangladesh ; Pakistan.

Minimum Maximum length reported so far : 123mm. 130mm. TL.

Remarks : Rarely occurring species, recorded so far from lower altitude only.

Inhabits hill streams.

Key to the Genera of family bagridae

1. Pores on ventral surface and sides of head; maxillary barbels extending not beyond potoral fin base.....2.

   No pores on ventral surface and sides of head ; maxillary barbels extending beyond dorsal fin base.....3.

2. Eyes large, subcutaneous, visible from below. Long pectoral fins reaching base of pelvic fins..... .....***Rama***

   Eyes moderate, with free orbital rim ; not visible from below. Pectoral fins short not extending to base of pelvic fins.....***Batasio***

3. Interneural shild between basal bone of dorsal fin and occipital proces present.....***Aorichthys***

   Interneural shield absent.....***Mystus***

35. Genus *Aorichthys* Wu

Aoria Jordan, 1919, *Proc. Acad. nat. Sci. Philad : 70* : 341 (Type species : *Bagrus lamarii* Valenciennes = *Platystoma* seenghala Sykes).

Aorichthys Wu, 1939, *Sinensia 10* : 131 (substituted name for *Aoria* Jordan and therefore with same type species) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 546.

Diagnostic characters of Species

Snout spatulate ; maxillary barbels much shorter, extend no further than pelvic fins ; width of mouth 1/3 rd. of head length ; caudal fin 19 21 rays.....*A. seenghala*

Aorichthys seenghala (Sykeys)

(Plate XXV, Figure 2)

Platystoma seenghala Sykes, 1831, *Trans. Zoo. Soc.Lond.*, 2 : 371, pl. 65, fig. C (Type locality : *Mulla Motha*

river at poona).

Aorichthys seenghala : Talwar and Jhingran, 1991, *Inland Fishes* vol.2 : 548.

Local name : "Kha ari" (Khasi)

Material examined : 1 example (Garo hills)

Meristic data :
D.i.7/0, P.i.9, V.i.5, A.iii.8-9, C.19-21.

Distribution in Meghalaya : Khasi hills, Garo hills (Baghmara).

Elsewhere : India : Assam, Darjeeling, West Bengal, Madhya Pradesh, Ahmedabad, North Bengal, Deccan ; Bangaladesh ; Yunnan ; Pakistan.

Minimum - Maximum length reported so far : 237 mm 1500 mm TL.

Remarks : Not very common in Meghalaya ; recorded from lower altitude only (below 200 M alt.).

36. Genus *Batasio* Blyth

Batasio Blyth, 1861, *J. Asiat. Soc. Beng.*, 29 :149 (Type species : *Batasio bushanani* Blyth = *Pimelodus Batasio* Hamilton - Buchanan) ; Talwar and Jhingran 1991, *Inland Fishes* vol. 2 : 549.

Key to Species

1. Body marked with either longitudinal bands or with oblique bands / spots ; occipital process extends to basal bone of dorsal fin, no pores on dorsal surface of head.....2.

2. Body marked with longitudinal bands ; a conspicuous black spot present above pectoral fin; no dusky blotch on nape; base of adipose dorsal fin much longer than anal fin base..... *B. batasio*

   Body marked with oblique vertical bands or spots ; no black spot above pectoral fin ; a dusky blotch present on nape ; base of adipose dorsal fin equals to or slightly shorter than anal fin base..... *B. tengana*

Batasio batasio (Hamilton Buchnan)

(Plate XXV, Figure 3)

Pimelodus batasio Hamilton Buchanan, 1822, *Fishes of Ganges* : 179, 377 (*nec.* pl. 23, fig. 10) (Type locality : Tista river, North Bengal).

Batasio batasio : Talwar & Jhingran, 1991, *Inland Fishes* vol. 2 : 550.

Material examined : 8 examples (2 from Khasi hills, 4 from Jaintia hills, 2 from Garo hills).

Meristic data :
D.i.7/10, P.i.5-8, V.i.5, A.ii-iv. 9-11, C.20.

Distribution in Meghalaya : Khasi hills (Shella), Jaintia hills (Dawki), Garo hills (Mahadev).

Elsewhere : India : Teesta river system, Eastern Himalayas, North Bengal, Assam, Tripura :

Bangladesh ; Nepal.

Minimum Maximum length reported so far : 71 mm 102 mm TL.

Remarks : Not very common in Meghalaya ; recorded so far from lower altitude only.

Inhabits streams and rivers.

Batasio tengana (Hamilton Buchanan)

(Plate XXV, Figure 4)

Pimelodus tengana Hamilton Buchanan, 1822, *Fishes of Ganges* : 176, 377, pl. 39, fig. 58 (Type locality : Brahmaputra river at Goalpara, Assam).

Batasio tengana : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 551.

Material examined : 2 examples (Khasi hills).

Meristic data :
D.i.7/0, P.i.7-9, V.i.5, A.iii-iv. 8-11, C.15.

Distribution in Meghalaya : Khasi hills (Shella).

Elsewhere : India : Assam, North Bengal, Punjab, Eastern Himalayas; Bangladesh; Burma : Malaya ; Thailand.

Minimum Maximum length reported so far : 90 mm 114 mm TL.

Remarks : Rarely occurring in Meghalaya, recorded so far from lower altitude of Khasi hills only.

Inhabits torrential streams.

37. Genus *Mystus* Scopoli

Mystus Scopoli 1777, *Introductio ad historiam naturalem* : 541 (Type species : *Bagrus haplepensis* valenciennes = *Silurus pelusius* Solander) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 554.

Key to the species

1. Occipital process reaching basal bone of dorsal fin.....2.

2. Adipose dorsal fin usualy long, commencing almost after rayed dorsal fin.....3.

   Adipose dorsal fin usually short, commencing after an interspace from rayed dorsal fin.....5.

3. Caudal peduncle not constricted. Maxillary barbels reach anal fin or beyond. Head length more than 5 times in TL.....4.

4. Maxillary barbels reach anal fin, sometimes beyond. Inter-orbital width less than 3.0 (2.0 - 3.0) times in head length. No dark spot at abse of dorsal fin. Branchio stegal rays 10 ; body with two lght longitudinal bands onc above and the other below lateral lone..... *M. bleekeri*

   Maxillary barbels reach caudal fin base or beyond. Inter-orbital width more than 3.0 (3.0-4.0) times in head length. A dark spot at dorsal fin base. Median longitudinal grove on head extends

to base of occipital process ; a dark spot on base of caudal fin often present. Branchiostegal rays 6.....*M. cavasius*

5. Median longitudinal groove on head short or long, as one or two fontalnelles, not reaching base of occipital process. Adipose dorsal fin base shorter than anal fin base. Body with 1 or 2 longitudinal coloured bands on either side of lateral line.....6.

6. Eye - diameter 3.5-4.0 times in head length. Pectoral fin with 6 soft rays. Body with a bluish shoulder spot and silvery line along the side ending in a dark spot at caudal base. One or two light bands along sides above lateral line.....*M. montanus*

   Eye dimeter 4.5 6.0 times in head length. Pectoral fin with 9 soft rays. Body with 3 or 4 longitudinal coloured bands above and below lateral lin. A dark shoulder spot. No spot at base of caudal fin.....*M. vittatus*

Mystus bleekeri (Day)

(Plate XXVI, Figure 1)

Bagrus keletius (*nec.* Valenciennes) Bleeker, 1846, *Nat. Geneesk. Arch. Ned. Indiaa*, *3* (2) : 135 (Type locality : Bengal) (name occupied by Valenciennes, 1839).

Macrones bleekeri Day, 1877, *Fishes of India* : 451, pl. 101, fig.1 (Replacement name for *Bagrus keletius Bleeker*, 1846)

Mystus bleekeri : Talwar and Jhingran, 1991, *Inland Fishes* vol. *1* : 558.

Local name : "Kha tynkra" (Khasi)

Material examined : 18 examples (12 from Khasi hills, 6 from Garo hills).

Meristic data :

D.i. 7-8/0, P.i. 9-10, V.i.5, A.ii-iv. 7-9, C.17.

Distribution in Meghalaya : Khasi hills (Cherrapunjee, Shella), Garo hills (Bozengdoba, Damalgiri, Tura, Phulbari)

Elsewhere : India : Assam, Darjeeling, Baroda, West Bengal, North India, Mahanandi headwaters ; Bangladesh ; Burma ; Malaya : Nepal : Pakistan ; Sumatra.

Minimum Maximum length reported so far : 86 mm 135 mm TL.

Remarks : Recorded so far from lower altitude of Meghalaya, not very common in Meghalaya.

Inhabits lakes, tanks and river.

Mystus cavasius (Hamilton Buchanan)

(Plate XXVI, Figure 2)

Pimelodus cavasius Hamilton Buchanan, 1822, *Fishes of Ganges* : 203, 379, pl. 11. fig. 67 (Type locality : Gangetic provinces).

Mystus cavasius : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 559.

Local name : "Kha tynkra" (Khasi)

Material examined : 10 examples (2 from Khasi hills 8 from Garo hills).

Meristic data :
D.i.7/0, P.i.8, V.i.5, A.ii-iv. 7-9, C.17.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Baghmara, Phulbari).

Elsewhere : India : Throughout India ; Bangladesh ; Borneo ; Burma ; China ; Java ; Malaya ; Nepal ; Pakistan ; Sumatra ; Sri Lanka; Thailand.

Minimum Maximum length reported so far : 85 mm 459 mm TL.

Remarks : Not very common in Meghalaya like other plain region. In Meghalayan population anal finrays are less (2/7 8 var. 4/7 9, Talwar and Jhingran, 1991) and caudal fin rays more 17 (var. 16, Day, 1889).

Inhabits freshwater and tidal rivers and lakes, also beds, ponds, ditches and inundated fields.

Mystus montanus (Jerdon)

(Plate XXVI, Figure 3)

Bagrus montanus Jerdon, 1849, *Madras Jour. Lit. and Sci. 15* (2) : 337 (Type locality ; Manantoddy, Wynaad, Kerala State).

Mystus montanus : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 567.

Material examined : 1 example (Khasi hlls)

Meristic data :
D.i.7/0, P.i.6, V.i.5, A.iii.9, C.19.

Distribution in Meghalaya : Khasi hils(Shella)

Elsewhere India : Assam, Kerala, Madhya Pradesh, Karnataka, Maharashtra.

Mimum Maximum length reported so far : 150 mm 204 mm TL.

Remarks : Single specimen could be collected so far from lower altitude of Khasi hills only. Rarely occurring in Meghalaya.

Inhabits freshwaters and also estuaries.

Mystus Vittatus (Block)

(Plate XXVI, Figure 4)

Silurus vittatus Block, 1797, *Ichthyol. Hist. Nat., 11* : 40, pl. 371, fig. 2 (Gype locality : Tranquebar, Tamil Nadu).

Mystus vittatus : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 573.

Local name : "Kha tynkriong" (Khasi).

Material examined : 21examples (4 from Khasi hills, 17from Garo hills).

Meristic data :
D.i.7/0, P.i.9, V.i.5, A.ii iii. 7-9, C.17.

Distribution in Meghalaya : Khasi hills (Barapani), Garo hills (Baghmara, Dalu, Damalgiri, Garobadha, Phulbari, Damra, Tura).

Elsewhere : India : Throughout India ; Bangladesh ; Burma ; Malaya; Nepal ; Pakistan ; Srilanka ; Thailand.

Minimum Maximum length reported so far : 34 mm 215 mm TL.

Remarks : Not very common in Meghalaya, recorded both from higher and lower altitude.

Inhabits standing and flowing waters : occurring within the tidal influence also.

38. Genus ***Rama*** Bleeker

Rama bleeker, 1855, *Ichthyol Arch. Indici. Prodr.*, 1, Siluri : 201 (Type species : *Pimelodus rama* Hamilton Buchanan) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 574.

Diagnostic characters of Species

Eyes conspicuously large, its diameter 3.0 3.2 in head length. Maxillary barbels smalland about equal to eye diameter ; outer and inner mandibular barbels shorter. Dorsal fin spine weak, lateral line complete, a conspicuous black spot on shoulder and another on nape..... *R. chandraenara.*

Rama chandramara (Hamilton Buchanan)

(Plate XXVII, Figure 1)

Pimelodus chandramara Hamilton Buchanan, 1822 *Fishes of Ganges* :152, 365 (Type locality : Atrai river, North Bengal).

Rama chandramara : Talwar and Jhingran, 1991, InlandFishes vol. 2 : 574.

Material examined : 3 examples (Jaintia hills).

Meristic data :
D.i.7/0, P.i.5 6, V.i.5, A.iii iv. 12 14, C. 16.

Distribution in Meghalaya : Jaintia hills (Dawki, Muktapur).

Elsewhere : India : Assam, North Bengal, Uttar Pradesh; Bangladesh.

Minimum Maximum length reported so far : 49 mm 52 mm TL.

Remarks : Not very common in Meghalaya, recorded so far from Jaintia hills only.

Inhabits streams and rivers.

Key to the genera of family siluridae

1. Eyes with free orbital rim, entirely above level of corner of mouth, gape of mouth wide and very long reaching beyond anterior marging of eye..... ***Wallago***

Eyes subcutaneous, gape of mouth short, not reaching beyond anterior margin of eye.....***Ompok***

39. Genus ***Ompok*** lacepede

Ompok Lacepede, 1803, *Hist. nat. Poiss.*, 5 : 49 (Type species : *Ompok siluroides* Lacepede = *Silurus bimaculatus* Bloch) ; Talwar and Jhingran, 1991, Inland Fishes vol. 2 : 581.

Key to the species

1. Maxillary barbels longer, extending upto or beyond anal fin. Anal fin with 57 to 60 branched rays.....*O. bimaculatus*

   Maxillary barbels short not extending upto anal fin.....2.

2. Maxillary barbels short, extend posteriorty no further than head ; pelvic fins with 9 10 rays ; anal fin with 63 68 branched rays. .....*O. pabo*

   Maxillary barbels short, extending only upto middle or tip of pectoral fin. Anal fin with 48 58 branched rays. Pelvic fins with 7 9 rays.....*O. pabda*

Ompok bimaculatus (Bloch)

(Plate XXVII, Figure 2)

Silurus bimaculatus Bloch, 1797, *Ichthyol. Hist. nat. des. Poiss, 11* : 17, pl. 364 (Type locality : Malabar).

Ompok bimaculatus : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 582.

Local name : "Kha Babia" (Khasi)

Material examined : 5 examples (2 from Khasi hills, 3 from Garo hills).

Meristic data :
D.3 4, P.i.12 14, V.i.7 8, A. ii-iii. 57 60, C.17

Distribution in Meghalaya : Khasi hills (Pynursla, Byrnihat), Garo hills (Dalu, Garobadha, Phulbari).

Elsewhere : India : Throughout India ; Afghanistan ; Bangladesh ; Borneo ; Burma ; China ; Java ; East Indies ; Indonesia ; Malaya ; Nepal ; Pakistan ; Srilanka ; Sumatra ; Thailand ; Vietnam ; Yunnan.

Minimum Maximum length reported so far : 126 mm 455 mm TL.

Remarks : Rare in occurrence in this region, collected so far from lower altitude only.

Inhabits rivers, streams, tanks and ponds.

Ompok pabda (Hamilton Buchanan)

(Plate XXVII, Figure 3)

Silurus pabda Hamilton Buchanan, 1822, *Fishes of Ganges* : 150, 374, pl. 25, fig. 47 (Type locality : Ponds and rivers of Bengal).

Ompok pabda : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 584.

Local name : "Kha Babia" (Khasi)

Material examined : 1 example (Garo hills)

Meristic data :
D.4 5, P.i.11 13, V.i.6 7, A.ii.52 58, C.18.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Dalu).

Elsewhere : India : Orissa, Ganga and Brahmaputra river system, Darjeeling ; Afghanistan ; Bangladesh ; Burma ; Pakistan.

Minimum Maximum length reported so far : 97 mm 170 mm TL.

Remarks : Rarely occurrig species in Meghalaya.

Inhabits rivers, tanks and ponds.

Ompok pabo (Hamilton Buchanan)

(Plate XXVII, Figure 4)

Silurus pabo Hamilton Buchanan, 1822, *Fishes of Ganges* : 153, 375, pl. 22, fig. 48 (Type locality : Brahmaputra river).

Ompok pabo : Talwar and Jhingran, 1991, *Inland Fishes* : vol. 2 : 585.

Material examined : 1example (Khasi hills)

Meristic data :
D.5, P.i.14, V.i.8 9, A.iii.63 68, C.17.

Distribution in Meghalaya : Khasi hills (Barapani), Garo hills.

Elsewhere : India : Ganga, Yumuna and Brahmaputra river system ; Bangladesh ; Burma ; Pakistan.

Minimum Maximum length reported so far : 127 mm 241 mm Tl.

Remarks : Rarely occurring in Meghalaya.

Inhabits rivers, tanks and ponds.

40. Genus ***Wallago*** Bleeker

Wallago Bleeker, 1851, *Natuurk, Tijdschr. Ned. Indie, 1* : 265 (Type species : *Silurus mulleri* Bleeker = *Silurus attu* Schneider) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 589.

Diagnostic characters of Species

Barbels two pairs, maxillary pairs of barbels long, extend ponteriorly to well beyond origin of anal fin ; the mandibular pair of barbels much shorter about as long as snout. Dorsal fin short inserted slightly in advance of pelvic fin. Weak pectoral fin spine often poorly serrated on its inner edge. Upper lobe of caudal fin longer. ..... *W. attu*

Wallago attu (Schneider)

(Plate XXVII, Figure 1)

Silurus attu Schneider, 1801, *Syst. Ichthyol.* 378, pl. 75 (Type locality : Malabar).

Wallago attu : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 590.

Local name : "Kha Buwa" (Khasi)

Material examined : 1 example (Garo hills).

Meristic data :
D.5, P.i.13 - 15, V.i.7 9, A.ii-iii.74 93, C.17.

Distribution in Meghalaya : Garo hills (Baghmara).

Elsewhere : India : Throughout India ; Bangladesh ; Borneo ; Burma ; Indonesia ; Indo China ; Malaya Archipelago ; Nepal ; Java ; Pakistan ; Srilanka ; Sumatra ; Siam ; Thailand ; West Yunan ; Vietnam ; Kampuchia.

Minimum Maximum length reported so far : 205 mm 2000 mm TL.

Remarks : Though abundantly occurring in plains, its occurrence in Meghalaya is not very common.

Inhabits freshwaters and tidal waters, in rivers, tanks, channels, reservoirs etc.

Key to the Genera of Family Schilbeidae

1. Adipose dorsal fin vestigeal, small or may be absent. 4 pairs of barbels present.....2.

2. Rayed dorsal fin absent, anal fin very long with 58 90 rays ; adipose dorsal fin very small, short, posteriorly free..... ***Ailia***

   Rayed dorsal fin present ; anal fin with 24 54 rays ; adipose dorsal fin vestigeal, small or may be absent.....3.

3. Mouth wide, its cleft extending to front edge of eye or beyond to its posterior border. Adipose dorsal fin short, posteriorly free..... ***Eutropiichthys***

   Mouth small to moderate, its cleft not extending to front of eye.....4.

4. Teeth on palate in two distinct patches, widely separated, often connected by a linear series posterior nostril narrow. Adipose dorsal fin short, posteriorly free..... ***Pseudeutropius***

   Teeth on palate in bands, not separated in middle. Posterior nostril wide. A small adipose dorsal fin may be present in young but absent in adult..... ***Clupisoma***

41. Genus *Ailia* Gray

Ailia Gray, 1831, *Zool. Miscellany* : 8 (Type species : *Malapterus (six) (Ailia) bengalensis* Gray = *Malapterurus coila* Hamilton - Buchanan) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 593.

Diagnosis characters of Species

Pelvic fin present ; anal fin with 58 75 rays ; ventral profile not pronouncedly arched. Body colour silvery to dull brown without any black band on caudal fin base or along side of the body..... *A. coila*

Ailia coila (Hamilton Buchanan)

(Plate XXVIII, Figure 2)

Malapterurus coila Hamilton Buchanan, 1822, *Fishes of Ganges* : 158, 375 (Type locality : freshwater rivers of Bengal).

Ailia coila : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2

Local name : "Kha tungkra" (Khasi)

Material examined : 7 examples (6 from Khasi hills, 1 from Garo hills)

Meristic data :
P.i.12 16, V.i.5, A.ii.58 75, C.19.

Distribution in Meghalaya : Khasi hills (Shella0, Garo hills (Dalu).

Elsewhere : India : Assam, North India extending on far south as river Krishna ; Bangladesh ; Nepal ; Pakistan.

Minimum Maximum length reported so far : 76 mm 180 mm TL.

Remarks : Rarely occuring in Meghalaya, recorded so far from lower altitude of Khasi and Garo hills.

Inhabits freshwater rivers and canals.

42. Genus ***Culpisoma*** Swainson

Clupisoma Swainson, 1839, *Natural History Animal*, Fishes 2 : 306 (Type species : *Pimelodus argentata* Swainson) ; Talwar and Jhingran, 1991, *Inland Fishes* 2 : 595.

Diagnostic characters of Species

Abdominal edge keeled partly between pelvic fin and vent. Pectoral fin not reaching pelvic fin. Maxillary barbels reaching pelvic fin. Anal fin with 29 36 rays..... *C. garua*

Clupisoma garua (Hamilton Buchanan)

(Plate XXVIII, Figure 3)

Silurus garua Hamilton Buchanan, 1822, *Fishes of Ganges* : 156, 375, pl. 21, fig. 50 (Type locality : freshwater rivers of Gangetic provinces).

Clupisoma garua : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 596.

Material examined : 1 example (Garo hills).

Meristic data :
D.i.7, P.i.11, V.i.5, A.iii.26 33, C.17.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Garobadha).

Elsewhere : India : Assam, Darjeeling, Bihar, West Bengal, Orissa, Madhya Pradesh, Throughout northern India, not recorded from south of Mahanadi ; Bangladesh ; Burma ; Nepal ; Pakistan.

Minimum Maximum length reported so far ; 163 mm 612 mm TL.

Remarks : Occurrence of the species in Meghalaya is not very common.

Inhabits freshwater streams and rivers.

43. Genus ***Eutropuchthys*** Bleeker

Eutropuchthys Bleeker, 1862, *Verh. Akad, Amsterdam, 14* : 393 (Type species : *Pimelodus vacha* Hamilton Buchanan); Talwr and Jhingran,1991. *Inland Fishes* vol. 2 ; 600.

Key to the Species

1. Branchiostegal rays 5 or 11 ; vomeropalatine band of teeth uninterrupted in middle ; nasal barbel shorter, rarely extend upto or beyond posterior border of head.....2.
2. Branchiostgal rays 11, cleft of mouth extends nearly to posterior edge of orbit ; nasal barbels rarely extend upto posterior border of head.....*E. vacha*

   Branchiostgal rays 5, cleft of mouth extends to anterior edge of orbit ; nasal barbels extend slightly beyond posterior edge of orbit..... *E. murius*

Eutropuchthys murius (Hamilton Buchanan)

(Plate XXVIII, Figure 4)

Pimelodus murius Hamilton - Buchanan, 1822, *Fishes of Ganges* : 195, 378 (Type locality : Mahananda river, North Bengal).

Eutropuchthys murius : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 602.

Material examined : 1 example (Khasi hills)

Meristic data :

D.i.7, P.i.10 11, V.i.5, A.iii.35 40, C.17.

Distribution in Meghalaya : Khasi hills (Pynursla)

Elsewhere : India : Assam, West Bengal, Northern India, Bihar, Orissa; Bangladesh; Nepal; Pakistan.

Minimum Maximum length reported so far : 148 mm 280 mm TL.

Remarks : Rarely occurring in Meghalaya ; recorded so far from Khasi hills only.

Inhabits fresh and tidal waters.

Eutropiichthys vacha (Hamilton Buchanan)

(Plate XXIX, Figure 1)

Pimelodus vacha Hamilton Buchanan, 1822, *Fishes of Ganges* : 196, 378, pl. 19, fig. 64 (Type locality :

larger freshwater rivers of Gangetic provinces).

Eutropiichthys vacha : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 603.

Materials examined : 1 example (Garo hills)

Meristic data :
D.i.7/0, P.i.13 16, V.i.5, A.iii iv. 41 52, C.17.

Distribution in Meghalaya : Khasi hills, Garo hills (Dalu).

Elsewhere : India : Bengal, Bihar, Darjeeling, Orissa, Northern India upto Mahananda; Bangladesh; Burma ; Nepal; Pakistan; Thailand.

Minimum Maximum length reported so far : 57 mm 350 mm TL.

Remarks : Not commonly occuring in Meghalaya.

Inhabits fresh and tidal waters.

44. Genus ***Pseudeutropius*** Bleeker

Pseudeutropius Bleeker, 1862, *Verh. Akad. Amsterdam 14* : 398 (Type species : *Eutropius brachypopterus* Bleeker) : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 605.

Diagnostic characters of species

Head 4.1 4.8 in standard length ; nape well elevated ; maxillary barbels extends upto anal fin which in nserted slightly behind dorsal fin ; eye diameter 2.5 3.0 in head length..... *P. atherinoides*

Pseudeutropius atherinoides (Block)

(Plate XXIX, Figure 2)

Silurus atherinoides Bloch, 1794, *Naturges. ausland. Fische*, 8 : 48, pl. 371, fig. 1 (Type locality : Tranquebar, Tamilnadu).

Pseudetropius atherinoides : Talwar and Jhingran, 1991, *Inland Fishes* Vol. 2 : 606

Local name : "Kha tyngkra" (Khasi)

Material examined : 9 examples (3 from Khasi hills, 6 from Garo hills).

Meristic data :

D.i.5 6/0, P.i.7, V.i.5, A. ii iii. 30 - 43, C.17.

Distribution in Meghalaya : Khasi hills (Nongpoh, Shella), Garo hills (Damalgiri, Garobadha, Phulbari, Tura).

Elsewhere : India : Throughout India except Kerala ; Bangladesh ; Burma ; Nepal ; Pakistan.

Minimum Maximum length reported sofar : 60 mm 128 mm TL.

Remarks : Not very common in Meghalaya, recorded so far from lower altitude only.

Inhabits freshwaters and tidal waters.

Diagnostic characters of Genus of Family Amblycipitidae

Body long, slender and compressed. Head broad and depressed ; a prominent fold of skin in front of the pectoral fin. Mouth terminal, barbels 4 pairs. Dorsal fin covered by a thick skin with one week one weak concealed spin and 5 and 6 soft rays; adipose dorsal fin been short enveloped in skin Pectoral fin well developed; anal fin base short; enveloped in skin. Pectorul fin with one weak spine and 7 soft rays. Lateral line absent ; skin smooth; eyes small, dorsolaterally placed. .....***Amblyceps***

45. Genus *Amblyceps* Blyth

Amblyceps Blyth, 1858, *Proc. Asiat. Soc. Bengal* : 27 : 282 (Type species : *Amblyceps caecutiens* Blyth = *Pimelodus mangois* Hamilton Buchanan) ; Talwar and Jhingran, 1991 *Inland Fishes* vol. 2 ; 615.

Diagnostic characters in Species

Prominent fold of skin in front of pectoral fin. Nostrils close together and seperated by a nasal barbel. Pectoral and Dorsal fin spine concealed ; caudal fin spine concealed ; caudal fin truncate or emerginate.....*A. mangois*

Amblyceps mangois (Hamilton Buchanan)

(Plate XXIX, Figure 3)

Pimelodus mangois Hamilton Buchanan, 1822, *Fishes of Ganges* : 199, 379 (Type locality : Northern Bihar).

Amblyceps mangois : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 615.

Material examined : 16 examples (7 from Jaintia hills, 9 from Garo hills).

Meristic data :

D.i.5 6/0, P.i.6 7, A.ii iii.6 8, C.19.

Distribution in Meghalaya : Khasi hills, Jaintia hills (Dawki, Muktapur), Garo hills (Baghmara, Damra, Rongram, Tura).

Elsewhere : India All along the base of the Himalayas from Punjab to Assam and Krishna river system ; Bangladesh ; Burma ; Laos ; Nepal ; Pakistan ; Thailand.

Minimum Maximum length reported so far : 38 mm 128 mm TL.

Remarks : Recorded from lower altitude of Meghalaya ; not very common in occurrence.

Inhabits pebbly beds in swift currents at the base of hills.

Key to the Genera of Family sisoridar

1. Adhesive thoracic apparatus distinct and well developed.....2.

   Adhesive thoracic apparatus absent or indistinct or faintly developed.....5.

2. Adhesive thoracic apparatus in form of a series of prominent and well developed transverse muscular folds of skin..... ***Pseudecheneis***

Adhesive thoracic apparatus in form of longtudinal muscular folds of skin. ....3.

3. Gill membrane separated by broad isthmus, caudal fin ray prolonged, head oval shaped, compressed.... ***Conta***

Gill membrane united with isthmus, caudal fin ray not prolonged, head flat depressed.....4.

4. Cubito humeral process inconspicuous, hidden by skin.... ***Glyptothorax***

5. Dorsal spine present, well-developed....6.

Dorsal spine absent, anterior ray thick but not bony....10.

6. Caudal fin ray not prolonged ; body smooth without bony plates....7.

Caudal fin ray prolonged; body rough with bony plates....9.

7. Maxillary barbels with stiff base lying in a groove anteriorily....8.

Maxillary barbels without stiff base and groove anteriorly....10.

8. Mandibular barbels inserted on a transverse line at different levl. Gill membrane free from isthmus or only slightly attached. Ventral surface of head flat and broad.... ***Nangra***

Mandibular barbels inserted on a transverse line at same level. Gill membrane broadly united with isthmus. Ventral surface of head compressed and narrow.... ***Gagata***

9. Gill openings wide, adipose dorsal smooth. Both lobes of caudal fin may be prolonged.... ***Bagarius***

10. Barbels annulated, body plain.... ***Hara***

Barbels not annulated, body with tubercles along sides of body.... ***Laguvia***

46. Genus ***Bagarius*** Bleeker

Bagarius Bleeker, 1853, *Verh. batav. Genoot. Kunst. Wet.*, 25 : 121 (Type species : *Bagarius buchanani* Bleeker = *Pimelodus bagarius* Hamilton Buchanan) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 621.

Diagnostic characters of Species

Pelvic fin inserted anterior to last dorsal fin ray ; adipose dorsal fin originates slightly to markedly posterior to anal fin origin ; pectoral fin rays 9 12.... *B. bagarius*

Bagarius bagarius (Hamilton Buchanan)

(Plate XXIX, Figure 4)

Pimelodus bagarius Hamilton Buchanan, 1822, *Fishes of Ganges* : 186, 378, pl. 7, fig. 62 (Type locality : Ganga river and its tributaries).

Bagarius bagarius : Talwar and Jhingran, 1991, *Indland Fishes* vol. 2 : 622.

Local name : "Kha khla" (Khasi)

Material examined : 1 example (Garo hills).

Meristic data :
D.i.6 7/0, P.i.9 12, V.i.5, A.iii.9 12, C.17.

Distribution in Meghalaya : Garo hills (Baghmara)

Elsewhere : India : Throughout India : Bangladesh ; Burma ; East Indies ; Indo China ; Malaya Archipelago ; Nepal ; Pakistan ; Thailand ; Tonkin.

Minimum Maximum length reported so far : 298 mm 2135 mm TL.

Remarks : Very rare in occurance, recorded so far from lower altitude of Garo hills only.

47. Genus ***Conta*** Hora

Conta Hora, 1950. *Rec. Indian Mus. 47*(2) : 194 (Type species : *Pimelodus conta* Hamilton Buchanan) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 624.

Diagnostic characters of Species

Head length 4.5 5.5 in standard length ; mouth small; lips thick, fleshy and papil-lated; maxillary barbels much shorter than head ; dorsal fin inserted in advance of pelvic fins..... *C. conta*

Conta conta (Hamilton Buchanan)

(Plate XXX, Figure 1)

Pimelodus conta Hamilton Buchanan, 1822, *Fishes of Ganges*: 191, 378 (Type locality : Mahananda river, Northeast Bengal).

Conta conta : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 264.

Material examined : 1 example (Garo hills)

Meristic data :
D.i.5 6/0, P.i.6, V.i.5, A.ii iii.7, C.17.

Distribution in Meghalaya : Garo hills (Rongram).

Elsewhere : India : Assam, Darjeeling Himalayas, North Bengal; Bangladesh ; Burma.

Minimum Maximum length reported so far : 49 mm 85 mm TL.

Remarks : Rarely occurring species in this region ; so far recorded from Garo hills only.

Inhabits rocky streams at the base of hills.

48. Genus ***Gagata*** Bleeker

Gagata Bleeker, 1858, *Ichthyol, Archipel. Ind. Prodromus : 1* : 204 (Type species : *Gagata typus* Bleeker = *Pimelodus* gagata Hamilton Buchanan) ; Talwar and Jhingran, 1991, Inland Fishes vol. 2 : 636.

Diagnostic characters of Species

Median longitudinal groove on head extends only to base of occipital process ; macillary barbels

shorter than head ; pectoral fin without any filamentous prolongation. Head 3.6 4.0 in standard length. Anal fin with 10 14 rays..... ***G. cenia***

Gagata cenia (Hamilton Buchanan)

(Plate XXX, Figure 2)

Pimelodus cenia Hamilton Buchanan, 1822, *Fishes of Ganges* : 174, 376, pl. 31, fig. 57 (Type locality : rivers of north Bengal).

Gagata cenia : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 637.

Material examined : 9 examples (4 from Jaintia hills, 5 from Garo hills)

Meristic data :
D.i.6/0, P.i.7-9, V.i.5, A.ii-iii. 10-14, C.18.

Distribution in Meghalaya : Jaintia hills (Daki0, Garo hiils (Phulbari, Tura).

Elsewhere : India : Assam including Chindwin drainage system, West Bengal, Orissa, Bihar, Uttar-Pradesh, Delhi, Punjab; Bangladesh; Burma; Nepal; Pakistan.

Minimum Maximum length reported so far : 74 mm 305 mm TL.

Remarks : Not very common, recorded so far from lower altitude only.

Inhabits rivers, also tidal rivers.

49. Genus ***Glyptothorax*** Blyth

Glyptothorax Blyth, 1861, *J. Asiat. Soc. Beng.* 29 : 154 (Type species : *Glyptothorax trilineatus* Blyth) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 643.

Key to the species :

1. Adhesive apparatus on thorax as long as broad or broader than long.....2.

   Adhesive apparatus on thorax longer than broad.....3.

2. Occipital process not reaching basal bone of dorsal fin; ventral surface of paired fins plaited..... .....*G. striatus*

3. Adhesive apparatus with a distinct central pit, skin smooth, adhesive apparatus conical in shape and complete posteriorly. Least height of caudal peduncle 2.7 in its length. Body depth 5.9 6.6 in standard length. Maxillary barbel shorter, extend only slightly beyond base of pectoral fin..... ..... *G. cavia*

   Adhesive apparatus without a central pit. Occipital process not reaching basal bone of dorsl fin. Origin of rayed dorsal fin midway or nearer to origin of adipose dorsal than tip of snout. Body rough with granulations of tubercles. Nostrils separated from snout by a distance equals to eye diameter. Caudal peduncle height 3.0 3.8 in its length. Anal fin inserted opposite or anterior to origin of adipose fin.....*G. telchitta*

Glyptothorax cavia (Hamilton Buchanan)

(Plate XXX, Figure 3)

Pimelodus cavia Hamilton Buchanan, 1822, *Fishes of Ganges*: 188, 378 (Type locality : rivers of north Bengal).

Glyptothorax cavia : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 649.

Material examined : 2 examples (Garo hills)

Meristic data :
D.i.6/0, P.i.8 9, V.i.5, A.ii iii.6 9, C.17.

Distribution in Meghalaya : Khasi hills (Ranikor), Garo hills (Bozengdoba, Remgiri, Siju).

Elsewhere : India : Assam, Eastern Himalayas, North Bengal ; Bangladesh ; Burma ; Nepal ; Pakistan.

Minimum Maximum length reported so far : 54 mm 165 mm TL.

Remarks : Rarely occurring in Meghalaya ; recorded so far from lower altitude only.

Glyptothorax striatus (Mc Clelland)

(Plate XXX, Figure 4)

Glyptosternon striatus Mc Clelland, 1842, *Calcutta J. nat. Hist.*, 2, ; : 587, pl. 6,fig.1 (Type locality : Khasi hills, Meghalaya).

Glyptothorax striatus : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 663.

Local name : "Doh than" (Khasi)

Material examined : 22 examples (Khasi hills).

Meristic data :
D.i.6/0, P.i.10 11, V.i.5, A.ii.9, C.17.

Distribution in Meghalaya : Khasi hills (Barapani, Sumer), Garo hills (Bozengdoba Remgiri).

Elsewhere : India : Easter Himalayas, Sikim.

Minimum Maximum length reported so far : 65 mm 217 mm TL.

Remarks : Common hill stream fishes occurring both in higher and lower altitude.

Glyptothorax telchitta (Hamilton Buchanan)

(Plate XXXI, Figure 1)

Pimelodus telchitta Hamilton Buchanan, 1822, *Fishes of Ganges* : 185, 378 (Type locality : Freshwater rivers of Bengal and Bihar).

Glyptothorax telchitta : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 ; 663.

Material examined : 2 examples (1 from Khasi hills, 1 from Garo hills).

Meristic data :
D.i.5 7/0, P.i.7 9, V.i.5, A.ii.8 10, C.17.

Distribution in Meghalaya : Khasi hills (Shella), Garo hills (Phulbari).

Elsewhere : India : Bihar, North Bengal, Uttar Pradesh, Madhya Pradesh, Punjab ; Bangladesh ; Nepal ; Pakistan.

Minimum Maximum length reported so far : 68 mm 153 mm TL.

Remark : Not very common in Meghalay ; recorded so far from lower altitude only (below 200 M alt.)

50. Genus ***Hara*** Blyth

Hara Blyth, 1861, *J. Asiat. Soc. Bengal ; 29* : 151 (Type species : *Hara buchanani* Blyth = *Pimelodus hara* Hamilton - Buchnan) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 665.

Diagnostic characters of Species

Pectora fin spine short, does not extend to pelvic fin which inserted below anterior to last ray of dorsal fin. Upper lobe of caudal fin simple. Occipital process not reaching basal bone of dorsal fin; adipose dorsal fin extends about one eye diameter behind vertical from end of anal fin..... *H. hara*

Hara hara (Hamilton Buchanan)

(Plate XXI, Figure 2)

Pimelodus hare Hamilton - Buchanan, 1822, *Fishes of Ganges* : 190, 378 (Type locality : Kosi river).

Hara hare : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 :

Material examined : 25 examples (7 from Khasi hills, 18 from Garo hills).

Meristic data :
D.i.6 7. P.i.6 -7, V.i.5, A.ii iv. 7 -8, C.15.

Distribution in Meghalaya : Khasi hills (Barapani), Garo hills (Baghmara, Phulbari).

Elsewhere : India : Assam, Nagaland, North Bengal, Terai, Duars, Uttar Pradesh, Orissa ; Bangladesh ; Burma ; Nepal.

Minimum Maximum length reported so far : 44 mm 153 mm TL.

Remark : Not very common in this region; occurring both in higher and lower altitude.

Inhabits slow moving freshwater rivers and streams.

51. Genus ***Laguvia*** Hora

Laguvia Hora, 1921, *Rec. Indian Mus. 22* (5) : 739 (Type species : *Pimelodus asperus* McClelland) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 670.

Diagnostic characters of Species

Origin of pelvic fin distinctly nearer base of caudal fin than tip of snout. Dorsal fin spine smooth. Body depth 4.5 5.0 in standard length. Inter orbital width 3.2 3.5, snout length 2.0 2.2 in head length; body with two bands ; posterior band below entire width of adipose dorsal..... ..... *L. Shawi*

Laguvia shawi Hora

(Plate XXXI, Figure 3)

Laguvia shawi Hora, 1921, *Rec. Indian Mus. 22* (5) : 740, pl. 29 fig. 2 (Type locality : Mahananda and Sivoke rivers, Darjeeling Himalayas).

Laguvia shawi : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 672.

Materials examined : 3 examples (Garo hills)

Meristic data :
D.i ii. 5 6/0, P.i.7, V.i.5, A.i.8, C.17.

Distribution in Meghalaya : Garo hills (R. Ronga).

Elsewhere : India : Northern India, Darjeeling himalayas ; Bangladesh.

Minimum Maximum length reported so far : 21 mm 140 mm TL.

Remark : The present species recorded from Meghalaya resembles to Hora's description except in colouration. The present specimens does not possess any bands on the body as mentioned in the description, instead there are black spots throughout the body. But this is a very minor difference as the colouration may differ an different environmental condition and for this it si not necessary to put them in separate supspecies.

52. Genus ***Nangra*** Day

Nangra Day, 1877, *Fishes of India* a, 493 (Type species : *Pimelodus nangra* Hamilton Buchanan); Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 674.

Diagnostic characters of Species

Dorsal fin with 6 or 7 soft rays; outer mandibular barbels do not extend beyond pectoral fin ; nasal barbels small or rudimentary, being almost as long or considerably shorter than eye diameter. A pair of finger like process present between bases of inner mandibular barbels; head greatly depressed..... .....*N. viridescens*

Nangra viridescens (Hamilton Buchanan)

(Plate XXXI, Figure 4)

Pimelodus viridescens Hamilton Buchanan 1822, Fishes of Ganges : 173, 376, pl 10, fig. 56 (Type locality : rivers of North Bengal).

Nangra viridescens : Talwar and Jhingran, 1991, Inland Fishes vol. 2 : 677.

Material examined : 13 examples (1 from Khasi hills, 12 from Garo hills).

Distribution in Meghalaya : India : Assam, West Bengal, North Bengal, Bihar, Delhi, Poona, Punjab, Uttar Pradesh ; Bangladesh ; Nepal.

Minimum Maximum length reported so far : 49 mm 300 mm TL.

Remark : Not very common in Meghalaya, recorded so far from lower altitude only.

Inhabits freshwater, streams and rivers.

53. Genus ***Pseudecheneis*** Blyth

Pseudecheneis Blyth, 1861, *J. Asiat. Soc. Bengal; 29*: 154 (Type species : *Glyptosternon sulcatus* McClelland): Talwar andJhingran, 1991. *Inland Fishes* vol. 2 : 679.

Diagnostic characters of Species

Head short, with a braod and oval thoracic apparatus; mouth small, inferior. Maxillary barbels broad based. Dorsal fin spine weak and roughened on its posterior edge. Paired fins large and expanded; outer pelvic fin rays with striated skin ventrally, caudal fins emarginate, its lobes pointed, lower lobe longer..... *P. sulcatus*

Pseudecheis sulcatus (McClelland)

(Plate XXXII, Figure 1)

Glyptosternon sulcatus McClelland, 1842, *Calcutta J. nat. Hist. 2*: 587, pl. 6 (Type locality : Khasi hills).

Pseudecheneis sulcatus : Talwar and Jhingran, 1911, *Inland Fishes* vol. 2 : 679.

Material examined : 3 examples (Khasi hills).

Meristic data :
D.i.6, P.i.13, V.i.5, A.ii iv.7 9, C17.

Distribution in Meghalaya : Khasi hills (Barapani, Jakrem, Mairang, Nongkhlaw).

Distribution in Meghalaya : India : Assam, Darjeeling, North Bengal ; Bangladesh ; Nepal Himalayas.

Minimum - Maximum length reported so far : 98 mm 204 mm TL.

Remark : Not very common in Meghalaya ; recorded so far from Khasi hills only.

Inhabits fast flowing hills streams.

Diagnostic characters of Genus of Family Clariidae

Body elongate and compressed; head moderately depressed. Eyes small, gill membranes free from isthmus. Dorsal fin and anal fin long. Well developed pectoral fin and pelvic fin. Pectoral fin withstrong punjent spine. Lateral line distinct..... ***Clarias***

54. Genus ***Clarias*** Scopoli

Clarias Scopoli 1777, *Introductio ad Historian Naturalem* : 455 (Type species : *Silurus anguillaris* Linnaeus) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. *2* : 683.

Diagnostic characters of Species

Dorsal fin inserted at a considerable of distance from end of head ; occipatal process angular and narrow, its distance from dorsal fin base 4.5 to 6 times in length of head. Pectoral spine strong, finely serrated on both edges, often rough externally..... *C. batrachus*

Clarias batrachus (Linnaeus)

(Plate XXXII, Figure 2)

Silurus batrachus Linnaeus, 1758, *Systema Naturae* ; 1 ed. 10 : 305 (Type locality : Asia and Africa).

Clarias batrachus : Talwar and Jhingran, 1991, *Inland Fishes* vol. *2* : 684.

Local name : "Kha Magur" (Khasi)

Material examined : 8 examples (5 from Khasi hills, 3 from Garo hills).

Meristic data :
D.63 76, P.i.8 11, V.i.5, A.45 58, C.17.

Distribution in Meghalaya : Khasi hills (Shillong, Umsning), Jaintia hills (Dawki, Khanduli, Ratachara), Garo hills (Darugiri, Phulbari).

Elsewhere : India : Throughout India ; Bangladesh ; Bali ; Borneo ; Burma ; Hongkong ; Indo China ; South China ; Java ; Lombok ; Malaya Archipelog ; Nepal ; Pakistan ; Phillippines ; Singapore ; Srelanka ; Sumatra ; Thailand.

Minimum Maximum length reported so far : 32 mm 460 mm TL.

Remark : Not very commonly occurring in Meghalaya like other plain region. Recorded both from higher and lower altitude.

Inhabits fresh and brackish waters of plains.

Diagnostic characters of Genus of Family Heteropneustidae

Body elongated, compressed ; mouth small, lips fleshy and papillated. Dorsal fin short, without spine, inserted above tip o fpectoral fin..... ***Heteropneustes***

55. Genus ***Heteropneustes*** Muller

Heteropneustes Muller, 1840, *Arch. Anat. Physiol.*, 115 (Type species *:Silurus fossilis* Bloch) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. *2* : 688.

Diagnostic characters of Species

Anal fin separated from caudal fin by a deep notch ; occipital process not extending to base of dorsal

fin. Pectoral fin with a strong spine, serrated along its inner edge and with a fw serrations at its anterior end externally..... *H. fossilis*

Heteropneustes fossilis (Bloch)

(Plate XXXII, Figure 3)

Silurus fossilis Bloch, 1794, *Naturgesch. ausl. Fische, 8* : 46, pl. 370, fig.2 (Type locality : Tranquebar, Tamil Nadu).

Heteropneustes fossilis : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 689.

Local name : "Kha Singi" (Khasi)

Material examined : 86 examples (78 from Khasi hills, 2 from Jaintia hills, 6 from Garo hills).

Meristic data :
D.6 7, P.i.7 8, V.i.5, A 60 - 70, C.19.

Distribution in Meghalaya : Khasi hills (Barapani, Cherrapunjee, Mawpat, Shella, Shillong, Umran, Umsning), Jaintia hills (Dawki, Jowai, Garrampani road), Garo hills (Damra, Darugiri, Phulbari, Songsak, Tura).

Elsewhere : India : Throughout India ; Bangladesh ; Burma ; Indo China ; Laos ; Nepal ; Pakistan ; Srilanka ; Thailand.

Minimum Maximum length reported so far : 35 mm. 305 mm TL.

Remark : Commonly occurring in Meghalaya ; recorded both from higher and lower altitude.

Inhabits freshwater, brackish waters.

Diagnostic characters of Genus of Family Chacidae

Body flat and stumpy, head broad and depressed. Mouth terminal and very wide. Dorsal fin small with 2 spines and 4 soft rays ; anal fin long with 8 10 branched rays..... ***Chaca***

56. Genus ***Chaca*** Gray

Chaca Gray, 1831, *zool. Miscell.,* 9 (Type species : *chaca hamiltono* Gray = *Platystacus chaca* Hamilton Buchanan) ; Talwar and Jhingram, 1991, *Inland Fishes* vol. 2 : 691.

Diagnostic characters of Species

Body flat and stumpy; head borad and depressed. Mouth terminal and very wide ; fleshy papillae along lateral surface of body above the lateral line. Flattened flaps of skin present along dorsal surface of head and immediately posterior to eyes; pectoral spine with 8 10 serrae..... *C. chaca*

Chaca chaca (Hamilton Buchanan)

(Plate XXXII, Figure 4)

Platystacus chaca hamilton Buchanan, 1822, *Fishes of Ganges* : 140, 374, pl. 28, fig. 43 (Type locality :

rivers and ponds of north eastern parts of Bengal).

Chaca chaca : Talwar and Jhingran, 1991 *Inland Fishes* vol. 2 : 692.

Material examined : 1 example (Jaintia hills)

Meristic data :
D.ii.4, P.i.5, V.i.5, A.i.8 10.

Distribution in Meghalaya : Khasi hills (Shella), Jaintia hills (Dawki).

Elsewhere : India : Ganga, Brahmaputra, Irrawady river system, some freshwater of Bombay ; Bangladesh ; Banka ; Burma ; Borneo ; Malaya ; Nepal ; Sumatra.

Minimum Maximum length reported so far : 175 mm 208 mm TL.

Remark : Rarely occurring in Meghalaya ; recorded and reported so far from lower altitude only.

Inhabits rivers.

Diagnostic characters of Genus of Family Olyridae

Body long and slender, loachlike, flattened in front of pelvic fin but compressed behind. Head small and depressed, snout obtusely rounded ; mouth narrow and erescentic. Gill membranes extensive, confluent with each other across isthmus. Adipose dorsal fin often confluent with caudal fin. Pectoral spine serrated on oth edges..... ***Olyra***

57. Genus *Olyra* McClelland

Olyra longicaudata McClellad, 1842, *Calcutta Jour. nat. Hist.*, 2 : 588 (Type species : *Olyra longlcaudata* MeClelland); Talwar & Jhingran, 1991. Inland Fishes vol. 2 694

Key to the species

1. Caudal fin forked..... 2
2. Pectoral fin with 4-6 soft rasy; upper lobe of caudal fin about twice as long as lower lobe..... ..... *O. longicauduta*

   Pectoral fin with 7 soft ray; upper lobe of caudal in fin only slightt longer than lower lobe..... ..... *O. horai*

Olyra horai (Prashad and Mukherjee)

(Plate XXXII, Figure 1)

Amblyceps horae Prashad & Mukherji, 1929, *Rec. Indian Mus.* 31 : 173, fig. 1 and pl. 7, fig. 1 (Type locality : Indawgyi lake, Upper Burma)

Olyra Horai : Tawlar & Jhingran, 1991, *Inland Fishes* Vol. 2 : 695.

Material examined : 4 examples (1 from Khasi hills, 3 from Garo hills).

Meristic data :

D.1.7, P.i.7, V.i,5,A.iii,18, C.15.

Dibution in Meghalaya : Khasi hills (Shella), Garo hills (Damra, Darugiri).

Elsewhere : India : recorded so far from Meghalaya only; Burma.

Minimum Maximum length reported so far : 50 mm 70 mm TL

Remarks : Rarely occurring species. Inhabits slow moving streams lakes, reservirs

Olyra longicaudata McClelland

(Plate XXXIII, Figure 2)

Olyra longicaudata McClelland, 1842, *Calcutta Jour. nat. Hist.*, 2 : 588, pl. 21, fig. 1 (Type locality : Khasi hills, Meghalaya).

Olyra longicaudata : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 694.

Material examined : 5 examples (Jaintia hills).

Meristic data :

D.i.6 7, P.i.4 6, V.i.5, A.ii iii.15 20, C.15.

Distribution in Meghalaya : Khasi hills (Shella), Jaintia hills (Dawki), Garo hills (Damra, Darugiri),

Elsewhere : India : Assam, Darjeeling Himalayas ; Burma.

Minimum Maximum length reported so far : 53 mm 115 mm TL.

Remark : Not very common in Meghalaya. Though type locality is Khasi hills, the species could be recorded so far from Jaintia hills only.

Ibhabits small rocky streams at the base of hills.

Diagnostic characters of Genus of Family Belonidae

Body elongated, cylindrical; caudal peduncle not strongly depressed. Dorsal fin and anal fin nearly opposite to each other. Caudal fin truncate or rounded. Scales minute; lateral line placed very low on body..... ***Xenentodon***

58. Genus ***Xenentodon*** Regan

Xenentodon Regan, 1911, *Ann. Mag. nat. Hist., 7* (8) : 332 (Type locality : *Esox cancila* Hamilton Buchanan) : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 743.

Diagnostic characters of Species

Dorsal fin rays 15 18; anal finrays 16 18; scales minute; predorsal scales more than 200..... ..... *X. cancila*

Xenentodon cancila (Hamilton Buchanan)

(Plate XXXIII, Figure 3)

Esox cancila Hamilton Buchanan, 1822, *Fishes of Ganges* : 213, 380, pl. 27, fig. 70 (Type locality : Gangetic provinces).

Xenentodon cancila : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 743.

Local name : "Kha tynriew" (Khasi)

Material examined : 8 examples (Garo hills)

Meristic data :
D.15 18, P.9 11, V.6, A.16 18, C.15.

Distribution in Meghalaya : Khasi hills, Jaintia hills, Garo hills (Damalgiri, Garobandha, Phulbari, Rongram, Tura).

Elsewhere : India : Throughout India ; Bangladesh ; Borneo ; Burma ; Malaya ; Nepal ; Pakistan ; Srilanka ; Sumatra ; Thailand.

Minimum Maximum length reported so far : 115 mm 400 mm TL.

Remark : Not very common in Meghalaya ; recorded so far from lower altitude only.

Inhabits freshwaters, primarily rivers.

Diagnostic characters of Genus of Family Aplocheilidae

Head and nape broad and flattened above. Mouth terminal, directed slightly upward. Dorsal fin inserted on posterior third of the body with 2/6 rays. Anal fin base wider than dorsal fin base, opercles not covered with scaled. Head scales not arranged in circular pattern..... ***Aplocheilus***

59. Genus *Aplocheilus* McClelland

Aplocheilus McClelland, 1839, *Asiat. Res., 19* (2) : 301 (Type species : *Esox Panchax* Hamilton - Buchanan) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 749.

Diagnostic characters of Species

Body elongated and compressed posteriorly. Eyes large, its diameter equals to interorbital width;. Anal fin almost squarshaped. Pelvic fins small, without any elongated ray. Caudal fin rounded 30- 34 scales in longitdinal series..... *A. panchax*

Aplocheilus panchax (Hamilton Buchanan)

(Plate XXXIII, Figure 4)

Esox panchx Hamilton Buchanan, 1822, *Fishes of Ganges*: 211, 380, pl. 3, fig. 69 (Type locality: Bengal)

Aplocheilus panchax: Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 752.

Material examined : 12 examples (2 from Khasi hills, 10 from Jaintia hills).

Meristic data :
D.i-ii. 6-7, P.12-14, V.6-7, A.iii.12-14, C.13-14.L.1.30-34, L. tr. 5/5, Predorsal scales 20-21, Scales around caudal peduncle 10.

Distribution in Meghalaya : Khasi hills (Balat), Jaintia hills (Dawki, Muktapur).

Elsewhere : India : Assam, Bihar, West Bengal, Uttar Pradesh, Orissa, East Punjab, Madhya Pradesh, Andaman ; Bangladesh ; Burma ; Thailand to Malaya Archipelago ; Pakistan ; Siam ; Srilanka.

Minimum Maximum length reported so far : 20 mm 90 mm TL.

Remark : Not very common in Meghalaya.

Inhabits clear, shallow and brackish waters at lower altitude.

Diagnostic characters of Genus of Family Synbranchidae

Body eel like, head short. Gill opening triangular or crescentic; without lateral folds, internally attached to isthmus; gill-opening placed ventrally. Caudal fin absent. Branchio stegal ray 5 or 6. Scales, when present, confined largely to caudal region..... ***Monopterus***

60. Genus *Monopterus* Lacepede

Monopterus Lacepede, 1800, *Hist. nat. Poiss.* 2 : 1399 (Type species : *Monopterus javanensis* Lacepede = *Muraena alba* Zuiew) : Talwar and Jhingran, 1991, *Inland Fishes* vol.2 : 775.

Diagnostic characters of Species :

Body with scales present posteriorly. Skin of branchial region of ventral side of head drawn into deeplongitudinal folds; dorsal and anal 'fin fold' or ridges rudimentary. Palatine teeth uniserial..... ..... *M(A) cuchia*

Monopterus (Amphipnous) Cuchia (Hamilton Buchanan)

(Plate XXXIV, Figure 1)

Unibranchapertura cuchia Hamilton Buchanan, 1822, *Fishes of Ganges*; 16, 363, pl. 6, Fig. 4 (Type locality : Rivers and ponds of south-east parts of Bengal).

Monopterus (Amphipnous) cuchia : Talwar and Jhingran, 1991, *Inland Inland Fishes* vol.2 : 776.

Material examined : 2 examples (1 from Khasi hills (Shella), 1 from Jaintia hills).

Distinguishing characters

Length of head (from gill opening) 6 8 times in distance between the snout and the anus; eyes situated midway between end of snout and posterior extremity of the jaws. A rudimentary dorsal 'fin fold' commences slightly before a vertical line drawn through the anus.

Distribution in Meghalaya : Khasi hills (Shella), Jaintia hills (Dawki).

Elsewhere : India : North and North East part of India, Orissa ; Bangladesh ; Burma ; Chusan ; Nepal ; Pakistan.

Minimum Maximum length reported so far : 260 mm 610 mm TL.

Remark : In Meghalaya, its occurrence is not very common, recorded so far from lower altitude

only.

Inhabits fresh and brackish waters.

Key to the Genera of Family Ambassidae

1. Canine teeth on lower jaw; minute scales; 100 107 in longitudinal series. Mouth particularly large with very prominent lower jaw. Supra orbital ridge smooth, ending in an indistinct spine... ..... ***Chanda***

   Canine teeth absent ; scales in longitudinal series. Mouth moderate, lower jaw more or less equal to upper aw. Supra orbital ridge dentate ; interopercular generally entire often poorly serrated... ..... ***Pseudambassis***

61. Genus *Chanda* Hamilton Buchanan

Chanda Hamilton Buchanan, 1822, *Fishes of Ganges* : 103, 270 (Type species : *Chanda nam*a Hamilton Buchanan) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 799.

Diagnostic characters of Species

Body stroughly compressed, mouth large, scales minute, partly deciduous ; often irregularly arranged. Body with scattered minute black dots which on the shoulder collect into oblong patch ; eyes black ; upper part of first dorsal fin deep black ; caudal fin dusky..... *C. nama*

Chanda nama (Hamilton Buchanan)

(Plate XXXIV, Figure 2)

Chanda nama Hamilton - Buchanan, 1822, *Fishes of Ganges* : 109, 371 ; pl. 39. fig. 37 (Type locality : ponds throughout Bengal).

Chanda nama : Talwar and Jhingran, 1991, *Inland Fisheries* vol. 2 : 799.

Local name : "Kha Snad" (Khasi)

Material examined : 54 examples (17 from Khasi hills, 1 from Jaintia hills, 36 from Garo hills).

Meristic data :

D.vii + i.13 17, P.i-ii. 11 -12, V.i.5 6, A.iii.15 - 16, C.17.

Distribution in Meghalaya : Khasi hills (Cherrapunjee, Mylliem, Nongpoh, Ranikor, Shella, Shillong), Jaintia hlls (Dawki), Garo hills (Baghmara, Dalu, Garobadha, Phulbari, Rongra stream).

Elsewhere : India : throughout India : Bangladesh ; Burma ; Nepal ; Pakistan.

Minimum Maximum length reported so far : 37 mm 110 mm TL.

Remark : Commonly occurring species recorded mainly from lower altitude.

Inhabits fresh and brackish waters, both in standing and running waters.

62. Genus ***Pseudambassia*** Bleeker

Pseudambassie Bleeker, 1874, *Natuurk. verh. Holl. Maatsch. Wetench.* 2 (2) : 86 (Type species : *Chanda lala* Hamilton - Buchanan) ; Talwar and Jhingran, 1991, *Inland Fishes* vol.2 : 803.

Key to the species

1. Lateral line scales about 90.....2.
   Lateral line scales less than 70.....3.
2. Finshyaline ; body yellowish green on back silvery on flanks and belly, with a silvery lateral band on flank; lower gill rakers about 11..... ***P. baculis***
3. Preopercular hind edge smooth, often with few serrations ; lower gill rakers 15 or 16.... ***P. ranga***

Pseudambassis baculis (Hamilton Buchanan)

(Plate XXXIV, Figure 3)

Chanda baculis Hamilton Buchanan, 1822, *Fishes of Ganges*: 112, 371, pl. 22, fig. 7 (Type locality : north eastern parts of Bengal).

Pseudambassis baculis Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 803.

Local name : "Kha snad" (Khasi)

Material examined : 2 examples (Garo hills)

Meristic data :
D.vi vii + i. 12 15, P.i.10 12, V.i.5 6, A.iii.12 14, C.17, L.1.90.

Distribution in Meghalaya : Garo hills (Baghmara, Mahadev).

Elsewhere : India : West Bengal, Orissa, North India, Kalimpong, Duars, Siliguri, Madhya Pradesh, Bombay, Bihar, Punjab ; Bangladesh ; Burma ; Pakistan ; Thailand.

Minimum Maximum length reported so far : 45 mm 63 mm TL.

Remark : Not very common in Meghalaya ; recorded so far from lower altitude of Garo hills only.

Inhabits freshwater ponds, ditches, pools and rivers.

Pseudambassis ranga (Hamilton Buchanan)

(Plate XXXIV, Figure 4)

Chanda ranga Hamilt on -Buchanan, 1822, *Fishes of Ganges* : 113, 371, pl. 6, fig. 38 (Type locality : freshwaters of all parts of Gangetic provinces).

Pseudambassis range : Talwar and Jhingran, 1991, Inland Fishes vol. 2 : 805.

Local name : "Kha snad" (Khasi)

Material examined : 53 examples (13 from Khasi hills, 4 from Jaintia hills, 36 from Garo hills)

Meristic data :
D.vii + i.11-14, P. i.10-12, V. i. 5-6, A.iii.13-16, C. 17. L.1. 47-63.

Distribution in Meghalaya : Khasi hills (Barapani, Byrnihat, Cherrapunjee, Shella, Shillong,

Mylliem, Nongpoh), Jaintia hills (Dawki, Muktapur, Umkiang stream), Garo hills (Baghmara, Dalu, Damra, Garobadha, Phulbari, Siju, Tura).

Elsewhere : India; Throughout India ; Throughout India; Bangladesh : Burma ; Malaya ; Nepal ; Pakistan ; Siam ; Thailand.

Minimum Maximum length reported so far : 39 mm 102 mm TL.

Remark : Commonly occurring in lower altitude of Meghalaya.

Inhabits fresh and brackish waters.

Key to the Genera of Family Nandidae

1. Mouth very large, strong, protrusible. Posterior arm of preoperculum very short. Dorsal fin with more than 10 soft rays..... ***Nandus***

   Mouth relatively small, slightly protrusibly. Horizontal and vertical limbs of preopeculum of equal length..Dorsal fin with less than 10 soft rays..... ***Badis***

63. Genus *Nandus* Valenciennes

Nandus Valenciennes, 1831, *Hist. nat. Poiss. 7* : 481 (Type species : *Nandus marmoratus* Cuvier = *Coius nandus* Hamilton Buchanan) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 877.

Diagnostic characters of Species

Body fairly deep, compressed; head large and compressed. Dorsal spine rather strong ; anal spine moderately strong, second spine longest. Operculum triangular with a single prominent spine ; preopercle serrated in a continuous band near its angles. Lateral line interrupted. 3 braod vertical patchy blotches on body; a dusky bloth at caudalfin base; narrow bands of spot across soft portions of dorsal, anal and caudal fin..... *N. nandus*

Nandus nandus (Hamilton Buchanan)

(Plate XXXV, Figure 1)

Coius nandus Hamilton - Buchanan. 1822, *Fishes of Ganges* : 96, 370, pl. 30, fig. 32 (Type locality : ponds of Gangetic provinces)

Nandus nandus : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 878.

Local name : "Kha sniang" (Khasi)

Material examined : 12 examples (3 from Khasi hills, 2 from Jainti hills, 7 from Garo hills).

Meristic data :

D.xii-xiv. 11-19, P.i.14-15, V. i.5, A. iii. 7-9, C. 14-15. L.1.46-57, L. tr. 6/19, Predorsal scales 14 Scales around caudal peduncle 26.

Distribution in Meghalaya :'Khasi hills 9Cherrapujee, Shella), Jaintia hills (Dawki, Muktapur), Garo hills (Damra, Garobadha, Phulbari, Tura).

Elsewhere : India : Throughout India ; Bangladesh; Burma; Malaya; Nepal; Pakistan; Thailand.

Minimum Maximum length reported so far : 100 mm 200 mm TL.

Remark: Recorded so far from lower altitude only. In Meghalayan population soft dorsal is having more fin rays (19 var. 11-13, Talwar and Jhingran, 1991). Pectoral fin rays (15 var. 16, Misra, 1959) and caudal finrays (14 var. 15, Misra, 1959) are less.

Inhabits fresh and brackish waters.

64. Genus ***Badis*** Bleeker

Badis Bleeker, 1853, *Verh. batav. Genoot, Kunst. Wet., 25* : 253 (Type species : *Badis buchanani* Bleeker = *Labrus badis* Hamilton Buchanan); Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 881.

Diagnostic characters of Species

Body moderately elongate, highly compressed. eyes large, mouth small. Dorsal spine somewhat slender; anal spine short; caudal fin rounded. Lateral line interrupted, often absent. Operculum distinctly triangular, its postero-dorsal corner with prominent spine, projecting posteriorly.....*B. badis*

Badis badis (Hamilton Buchanan)

(Plate XXXV, Figure 2)

Labrus badis Hamilton Buchanan, 1822, *Fioshjes of Ganges* : 70, 368, pl. 25, fig. 23 (Type locality : Gangtic provinces)

Badis badis : Talwar and Jhingran, 1991, *Inland Fishes*, vol. 2 : 882.

Local name : "Kha snoing" (Khasi).

Material examined : 273 examples (61 from Khasi hills, 101 from Jaintia hills, 111 from Garo hills).

Meristic data :

D.xvi-xviii. 7-10, P.i.11-12, V.i.5-6, A.iii.6-8, C.14. L.l.26-33, L. tr. 3/7, Predorsal scales 8-9, Scales around caudal peduncle 16-18.

Distribution in Meghalaya : Khasi hills (Barapani, Byrnihat, Lailad, Mylliem, Nongpoh, Nongkhyllem, Pynursla, Shella, Sonapahar, Umtham), Jaintia hills (Badarpur road, Dawki, Muktapur, Umkiang stream, Shangpung), Garo hills (Baghmara, Damra, Darugiri, Rongrengiri, Siju, Songsak, Williamnagar, Phulbari).

Elsewhere : India : Throughout India ; Bangladesh ; Burma ; Nepal ; Pakistan.

Minimum Maximumlength reported so far : 17 mm 90 TL.

Remark : Commonly occurring in Meghalaya, recorded from both higher and lower altitude.

Inhabits freshwaters, rivers, ponds and ditches.

Key to the Genera of Family Mugilidae

1. Spine on operculum above pectoral fin base; head wide, dorsally flattened; caudal fin forked; first dorsal inserted nearer to tip of snout than to caudal fin base..... ***Sicamugi***

No spine on operculum ; head concave between eyes, eyes projecting above this level ; anterior nostrils at level of eye centre, or lower ; mouth conspicously ventral. Caudal fin slightly emarginate ; first dorsal inserted nearer to base of caudal fin than to tip of snout. .....***Rhinomugil***

65. Genus ***Rhnomugil*** Gill

Rhinomugil Gill, 1863, *Proc. Acad. nat. Sci. PPhilad., 15*: 169 (Type species : *Mugil corsula* Hamilton-Buchanan); Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 897.

Diagnostic characters of Species

Body rather stout ; head moderate, concavc between eyes, latter projecting above this level. Mouth ventral, protrusible. Scales in lateral series 48-52.....*R. corsula*

Rhinomugil corsula (Hamilton Buchanan)

(Platc XXXV, Figure 3)

Mugil corsula Hamilton-Buchanan, 1822, *Fishes of Ganges*: 21, 381, pl. 9, fig. 97 (Type locality : Ganges river).

Rhinomugil corsula: Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 897.

Material examined : 2 examples (Garo hills).

Meristic data :

D.iv. i.8, P.i.10-15, V.i.5-6, A.iii.9, C.15, L.1. 48-52, L. tr. 7/8, Predorsal sacles 17, Scales around caudal peduncle 18.

Distribution in Meghalaya : Garo hills (Baghmara).

Elsewhere : India : Introduced into Cauveri river system, throughout Gangetic provinces to N. E. India ; Bangladesh ; Burma ; Nepal ; Pakistan.

Minimum Maximum length reported so far : 126 mm 459 mm TL.

Remark : Rarely occurring in Meghalaya, recordcd so far from lower altitude of Garo hills only (below 200 M).

Inhabits fresh and brackish waters.

66. Genus ***Sicamugil*** Fowler

Sicamugil Fowler,1939, *Notul. Nat. Acad. Philad., 17* : 9(Type species : *Mugil hamiltonii* Day); Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 898.

Diagnostic characters of Species

Body modrately robust. Dosal fin inserted conspicuously nearer tip of snout than to caudal fin base; anal fin origin opposite to second dorsal fin origin ; caudal fin forked.....*S. cascasia*

Sicamugil cascasia (Hamilton Buchanan)

(Plate XXXV, Figure 4)

Mugil cascasia Hamilton Buchanan, 1822, *Fishes of Ganges* : 217,380 (Type locality : Northern rivers of Bengal).

Sicamugil cascasia : Talwara and Jhingran, 1991, *Inland Fishes* vol. 2 : 899.

Material examined : 15 examples (Garo hills).

Meristic data :

D.iv/ i.7-8, P.i.12-14, V.i.5, A.iii. 8-9, C.14-16, L.l. 36-39, L. tr. 6/8, Predorsal scales 10, Scales around caudal peduncle 14-15.

Distribution in Meghalaya : Garo hills (Dalu, Siju)

Elsewhere : India ; Introduced in Cauveri river systems, upper reaches of Ganges, Yamuna and Brahmaputra river systems ; Bangladesh ; Pakistan ; Srilanka.

Minimum Maximum length reorted so far : 55 mm 102 mm TL.

Remark : Not very comonly occurring in Meghalaya ; recorded so far from lower altitude of Garo hills only. In present specimens caudal fin rays are more (16 var. 14, Misra, 1959).

Inhabits freshwaters only.

Diagnostic characters of Genus of Family Gobiidae

Body elongate, anteriorly cylindrical, posteriorly compressed. Head depressed, snout elongate, head scaled above behind eyes. Mouth slightly oblique, lower jaw prominent. Maxilla reaching to below front half of eye. Dorsal fins separate, pelvic fins form disc, scales stenoid..... ***Glossogobius***

67. Genus *Glossogobius* Gill

Glossogobius Gill, 1862, *Ann. Lye. Nat. Hist. New York* : 7 : 46 (Type species : *Gobius platycephalus* Peters = *Gobius giuris* Hamilton Buchanan); Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 934.

Diagnostic characters of Species

Branchiostegal membrane attached to sides of isthmus ; body pale without longitudinal lines ; sometimes with saddles; 9-14 scales with one black spot or without it. Iris without a lappet.. .. *G. giuris*

Glossogobius giuris (Hamilton Buchanan)

(Plate XXXVI, Figure 1)

Gobius giuris Hamilton Buchanan, 1822, *Fishes of Ganges* : 51, pl. 33, fig. 15 (Type locality : Gangetic provinces).

Glossogobius giuris : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 936.

Local name : "Khathli" (Khasi)

Material examined : 19 examples (5 from Khasi hills, 1 from Jaintia hills, 13 from Garo hills).

Meristic data :

D.vi./i.8-9, P.i.16-21, V.i.4, A.i.7-9, C.15-17, L.l.40, L. tr.4/5, Predorsal scales 6-7, Scales around caudal peduncle 12.

Distribution in Meghalaya : Khasi hills (Barapani, Shella), Jaintia hills (Dawki, Muktapur), Garo hills (Mahadev, Phulbari, Tura).

Elsewhere : India : Throughout India including Andamans; Bangaladesh ; Burma ; China ; Malaya Peninsula ; Nepal ; Pakistan ; Philippines ; Sri Lanka ; Thailand ; East coast of Africa to Japan ; Australia ; Indo-Australian archipelago and the South Pcific Islands.

Minimum-Maximum length reported so far : 33 mm 457 mm TL

Remark : Not very common in Meghalaya. Number of caudal fin rays (15) are usually less than those of plain region (17, Day 1889, Misrs 1959).

Inhabits primarily freshwaters and estuaries ; also the seas.

Diagnostic characters of Genus of Family Anabantidae

Body oblong and compressed; head and anterior part of body rather broad ; posterior parts compressed. Mouth small and terminal upper jaw only slightly protrusible. Scales of moderate size, ctenoid, 2 lateral lines.....***Anabas***

68. Genus *Anabas* Cuvier and Cloquet

Anabas Cuvier and Cloquet, 1816, *Distionaire des sciences naturelles* (ed.2), 2 suppl : 35 (Type species : *Perca scanens* Daldoff = *Anthias testudineus* (Bloch); Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 995.

Diagnostic characters of Species

Body depth 3.0-3.5 in standard length; snout length 13.0-17.5 in standard length. Pectoral fin long with 13-15 rays; dorsal fin with 8-10 soft rays.....*A. testudineus*

Anabas Testudineus (Bloch)

(Plate XXXVI, Figure 2)

Anthias testudineus Bloch, 1795, *Naturges. Ausland. Fische* (6) : 121. pl. 322 (Type locality : ? Java)

Anabas testudineus : Talwar and Jhingran, 1991, *Inland fishes* vol. 2 : 996.

Local name : "Kha Koi" (Khasi)

Material examined : 12 examples (2 from Khasi hills, 10 from Garo hills).

Meristic data :

D.xvi xviii/ 8 10, P.i.13-14, V.i.5, A. viii-ix/9-11, C.16.L.1.29-34, L. tr. 3/10, Predorsal scales 5, Scales around caudal peduncle 24.

Distribution in Meghalaya : Khasi hills (Schella), Garo hills (Amphangiri, Damalgiri, Darugiri, Garobadha).

Elsewhere : India : Throughout India ; Bangaladesh ; Burma ; Cambodia ; Indo China ; China ; Malaya ; Malaya Archipelago ; Nepal ; Pakistan ; Phillippines ; Polynesia ; Singapore ; Sri Lanka ; Thailand.

Minimum Maximum length reported so far : 94 mm 250 mm TL. or more.

Remark : In Meghalaya its occurrence is not common like other plain region ; recorded so far from lower altitude only.

Inhabits fresh and brackish water ; mostly in canals, lakes, ponds and swamps.

Diagnostic characters of Genus of Famly Belontiidae

Body oblong, compressed, mouth small, highly protrusible. Opercle entire; ventral border of preopercle serrated. Dorsal fin long with 15 18 spines and 6 14 rays; anal fin with 15 22 spines and 11 20 rays. Pelvic fin with a single long filamentous ray and rudimentary adnate spine. Scales large and ctenoid. Lateral line often absent or vestigeal..... ***Colisa***

69. Genus *Colisa* Cuvier

Colisa Cuvier, 1831, *Hist. nat. Poiss. 7* : 359 (Type species : *Trichopodus colisa* Hamilton Buchanan = *Trichogaster fasciatus* Schneider) ; Talwar and Jhingran, 1991, *Inland Fishes* vol.2 : 1005.

Key to the Species

1. Body with a blackish longitudinal band from eye to caudal fin..... ***C. sota***

   Body with 14 ormore oblique bands. Soft part of dorsal and anal fin produced to a varying degree; anal fin scaly at base only; caudal slightly notches or cut square..... *C. fasciatus*

Colisa Fasciatus (Schneider)

(Plate XXXVI, Figure 3)

Trichogaster fasciatus Schneider, 1801, *Syst. Ichyh.*, 164, pl. 36 (Type locality ; Tranqueber)

Colisa fasciatus : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1006.

Local name : "Kha snoing" (Khasi hills)

Material examined : 65 examples (35 from Khasi hills, 5 from Jaintia hills, 25 from Garo hills)

Meristic data :

D.xv-xvii/8-14, P.i.8-9, V.1, A.xv-xviii/14-19, C.16. L.1.29-31, L. tr. 5.5/12, Predorsal scales 7, scales around caudal peduncle 18.

Distribution in Meghalaya : Khasi hills (Barapani, Balat, Cherrapunjee, Shella, Umtham), Jaintia hills (Dawki, Muktapur), Garo hills (Damra, Garobadha, Phulbari, Tura).

Elsewhere : India : Assam, North India, Esturies of Ganga, Coromandal coast, River Krishna ; Bangladesh ; Burma ; Nepal ; Pakistan.

Minimum Maximum length reported so far : 28 mm 128 mm TL.

Remark : Commonly occuring in Meghalaya, recorded so far from both lower and higher altitude.

Inhabits large rivers and estauries ; also tanks, ditches and ponds.

Colisa sota (Hamilton Buchanan)

(Plate XXXVI, Figure 4)

Trichopodus sota Hamilton Buchanan, 1822, *Fishes of ganges* : 120, 373 (Type locality : Ganges river).

Colisa sota : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1007.

Local name : "Kha snoing" (Khasi).

Material examined : 17 examples (8 from Khasi hills, 5 from Jaintia hills, 4 from Garo hills).

Meristic data :

D.xvii xviii/6/6-9, P.i.7-8, V.1, A.xviii xxii/11-13, C.15. L.1.27-29, L. t. 5/10, Predorsal scales 7, scales around caudal peduncle 14.

Distribution in Meghalaya : Khasi hills (Barapani, Lailad, Umtham), Jaintia hills (Dawki), Garo hills (Damalgiri, Damra, Garobadha).

Elsewhere : India : Assam, Gangetic provience ; Bangladesh.

Minimum Maximum length reported so far : 30 mm. 46 mm TL.

Remarks : Not commonly occuring like fasciatus ; so far recorded mainly fom lower altitude only.

Diagnostic characters of Genus of Family Channidae

Body elongate, almost cylindrical anteriorly and somewhat compressed posteriorily. Head large, mouth fairly large. Anterior nostril tubular, dorsal and anal fin long based ; pelvic fin subabdominal... ..... ***Channa***

70. Genus ***Channa*** Scopoli

Channa Scopoli, 1777, *Intro. Hist. Nat.*, 459 (Type species : *Channa orientalis* Bloch and Schneider) ; Talwar and Jhingran, 1991, *Inland Fishes* Vol. 2 : 1014.

Key to the Species

1. Predorsal scales 12 or 13, 4 or 5 scales between preopercular angle and posterior border of orbit. .....2.

   Predorsal scales 15 22; 9 or 10 scales between preopercular angle and posterior border of orbit. .....4.

2. Anal finrays 27, dorsal fin rays 39 -40; black spot on many scales of body. ..... *C stewartii*

   Anal finrays 20 - 23, dorsal finrys 28-37.....3.

3. Pectoral fin with bluish vertical bands; dorsal finrays 32-37; pelvic fin length (When present) less than half of pectoral fin..... *C. orientalis*

   Pectoral fin plain, no vertical band; dorsal finrays 28-32 (rarely 33) pelvic fin long,more than half of pectoral fin..... *C. punctatus*

4. Predorsal scales 18-20, several dark vertical bands below lateral line. Alan fin with 23-29 rays... ..... *C. striatus*

Figs. Plates & Maps

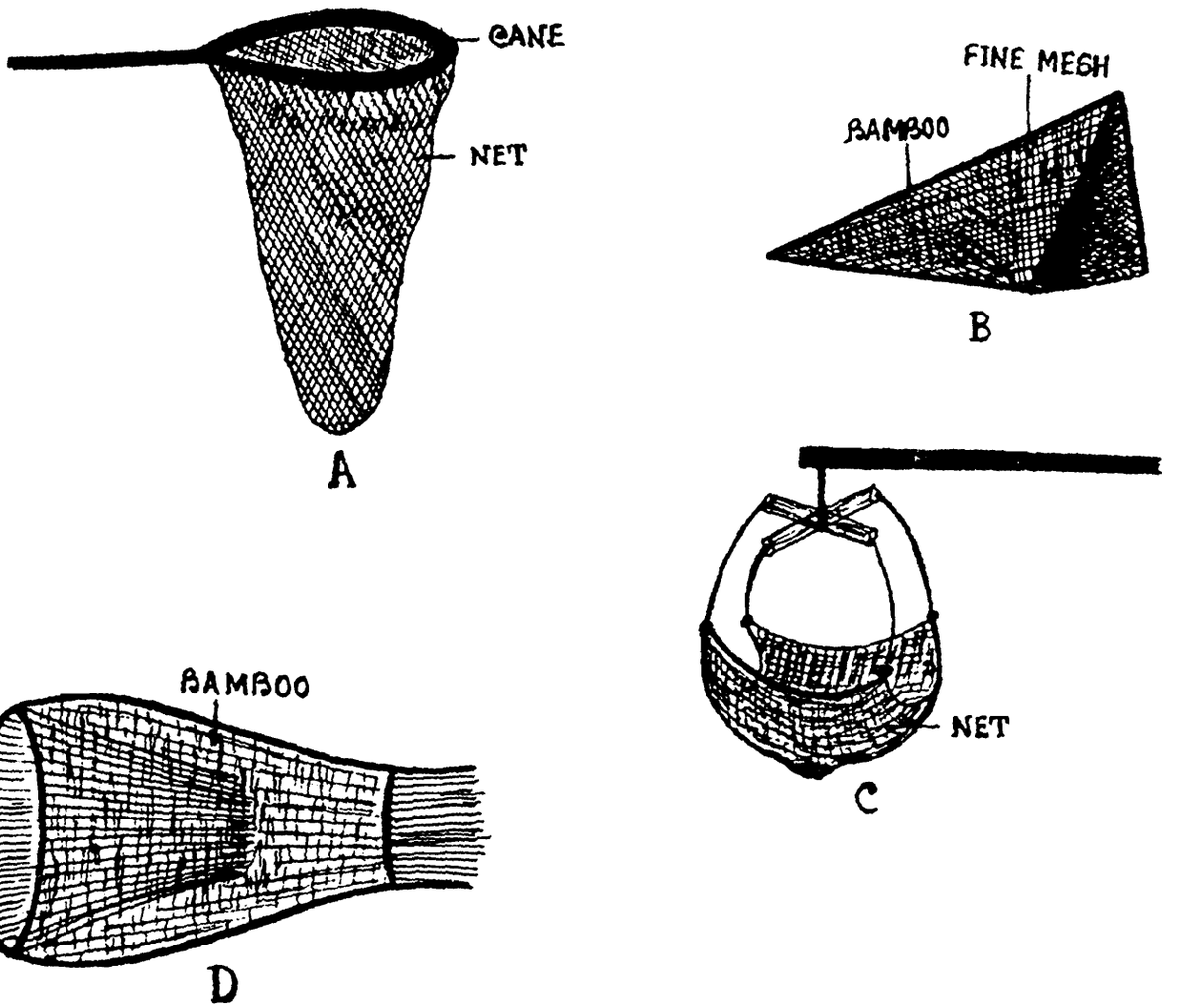


Fig. 1. Diagrams showing different types of scoop nets A. Tynsong, B. Kriah, C. Bneid, D. Shrip.

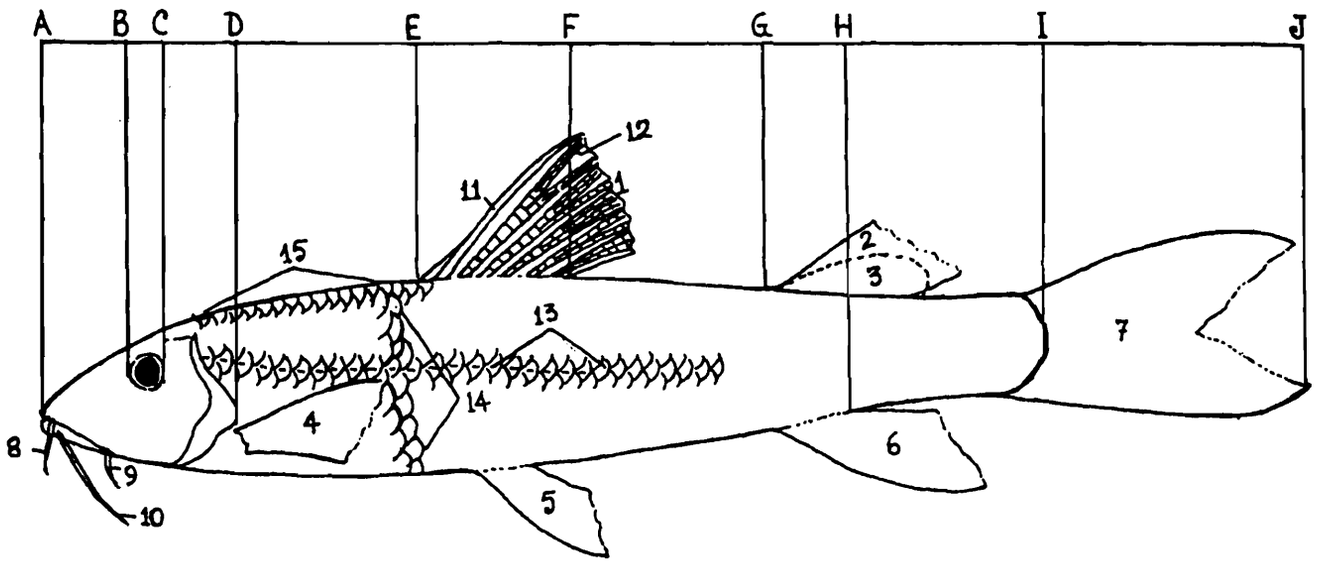


Fig. 2 : Diagrammatic representation of a fish showing different taxonomic characters and body measurements. 1. Dorsal fin, 2. 2nd Dorsal fin, 3. Adipose fin, 4. Pectoral fin, 5. Pelvic fin, 6. Anal fin, 7. Caudal fin, 8. Rostral barbel, 9. Maxillary barbel, 10. Mandibular barbel, 11. Unbranched ray, 12. Branched ray, 13. Lateral line scales, 14. Lateral transverse scales, 15. Predorsal scales.

AB - Snout length, BC Eye diameter, AD - Head length, AE - Predorsal length, FG - Distance between Rayed dorsal and 2nd dorsal or adipose dorsal, HI - Caudal peduncle length, IJ - Length of Caudal fin, AJ Total length, AI - Standard length.

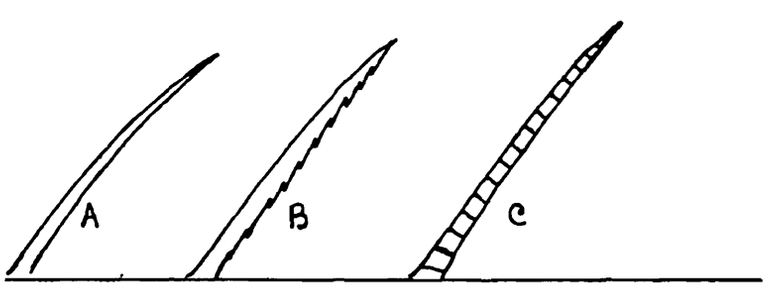


Fig. 3 : Diagramme showing different types of unbranched rays.

A. Simple ray, B. Spinous ray, C. Hard ray.

PLATE I

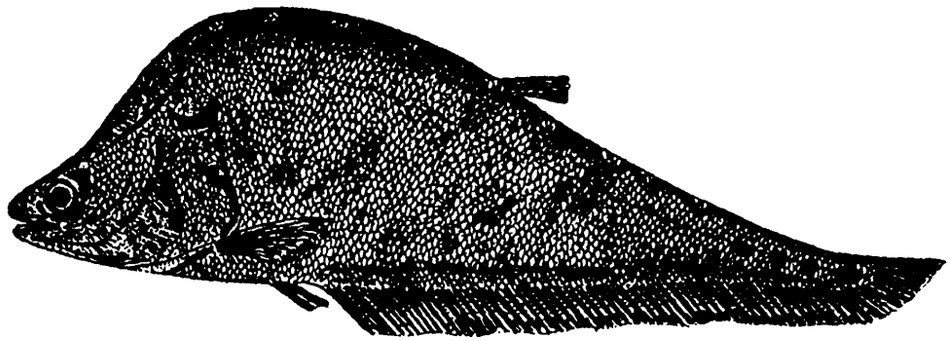


FIG 1

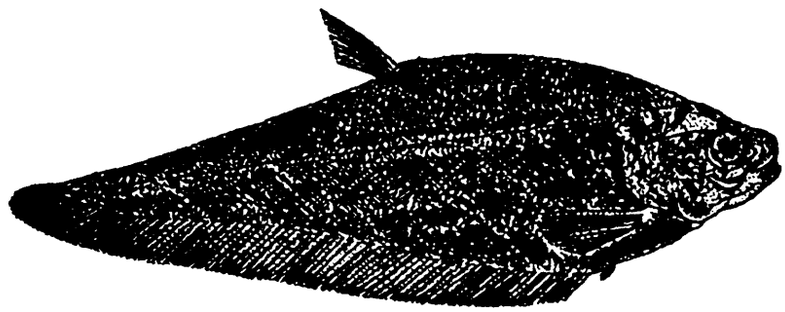


FIG 2

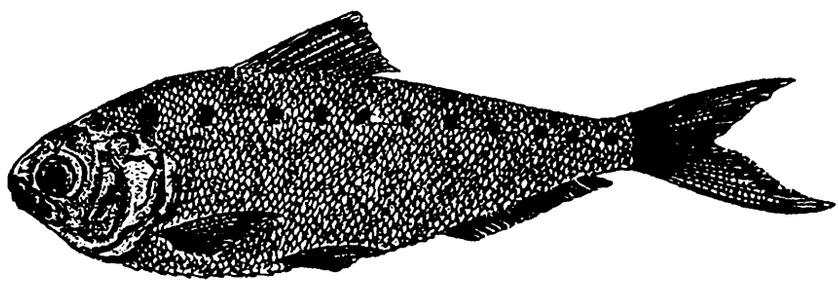


FIG 3

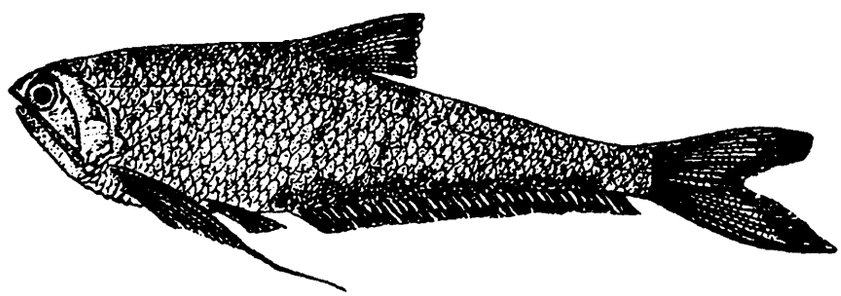


FIG 4

Fig. 1 *Notopterus chitala* (Hamilton–Buchanan) 2. *Notopterus notopterus* (Pallas) *chapra* (Hamilton–Buchanan) 4. *Setipinna phasa* (Hamilton–Buchanan)

PLATE II

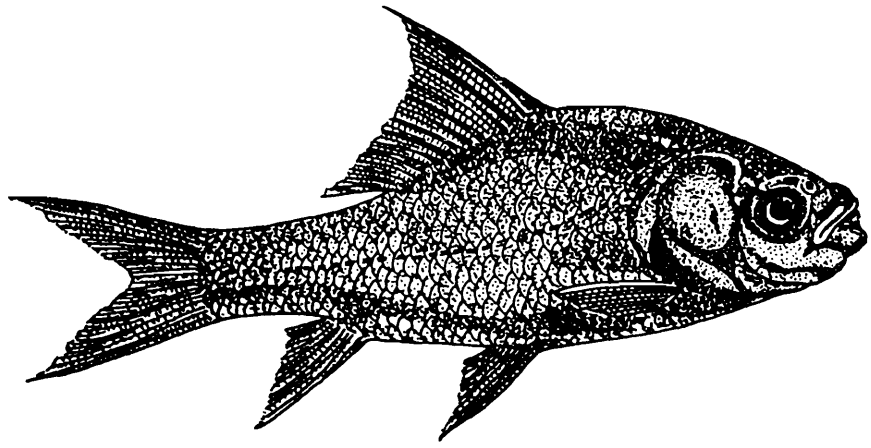


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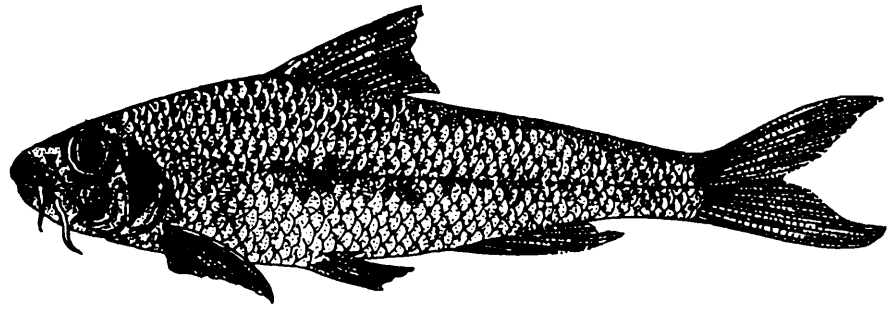


FIG 2

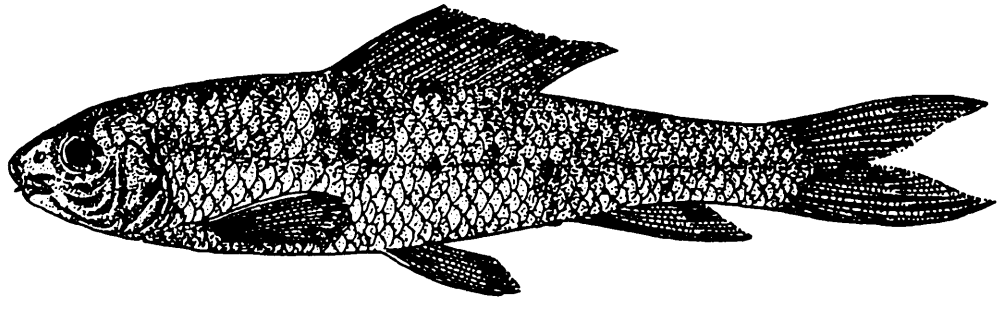


FIG 3

Fig. 1 *Catla catla* (Hamilton–Buchanan) 2. *Chagunius chagunio* (Hamilton–Buuchanan 3. *Cirrhinus mrigala mrigala* (Hamilton–Buchanan)

PLATE III

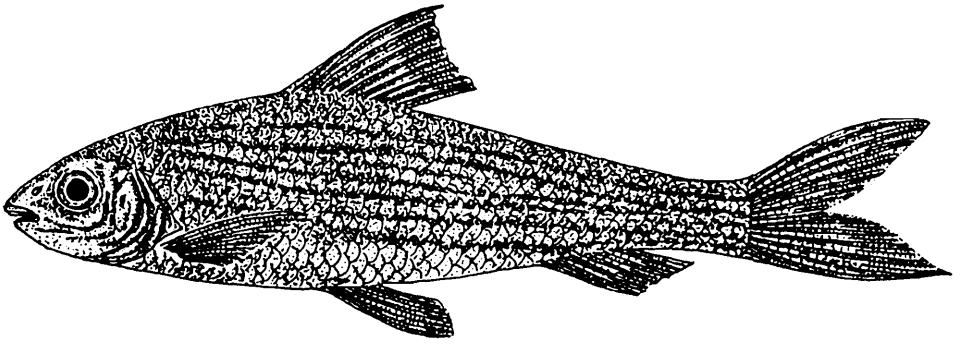


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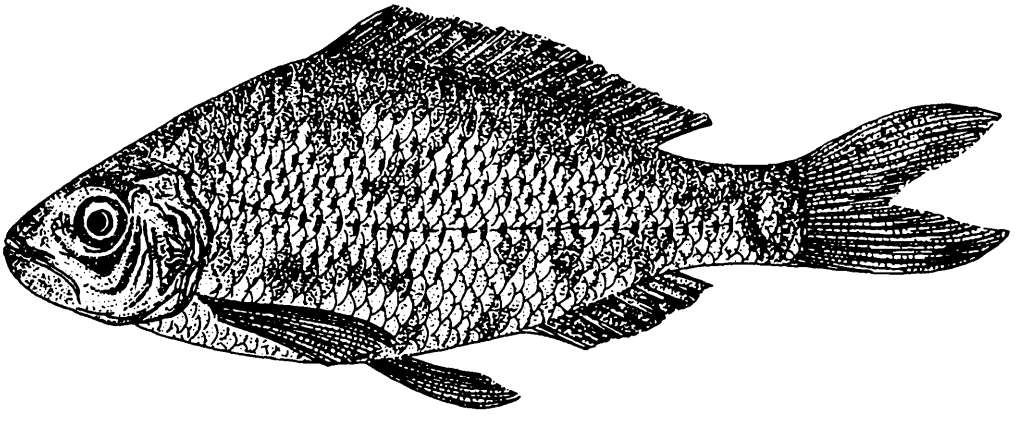


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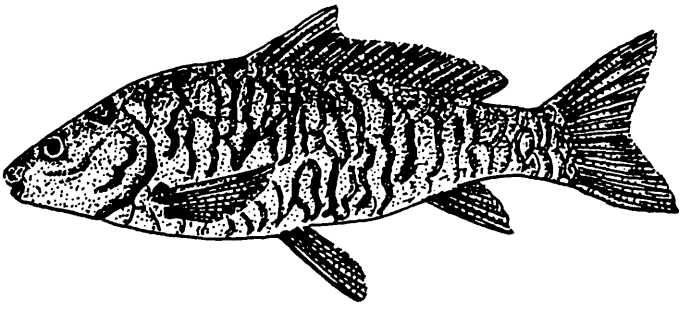


FIG 3

Fig. 1 *Cirrhinus reba* (Hamilton–Buchanan) 2. *Cyprinus Carpio* var. *Communis* (Linnaeus) *3. Cyprinus carpio* Var. *specularis* Lecpede

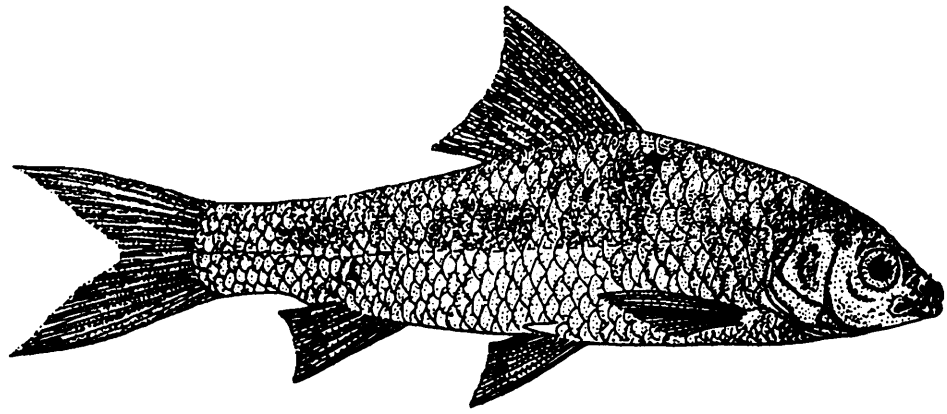


FIG 1

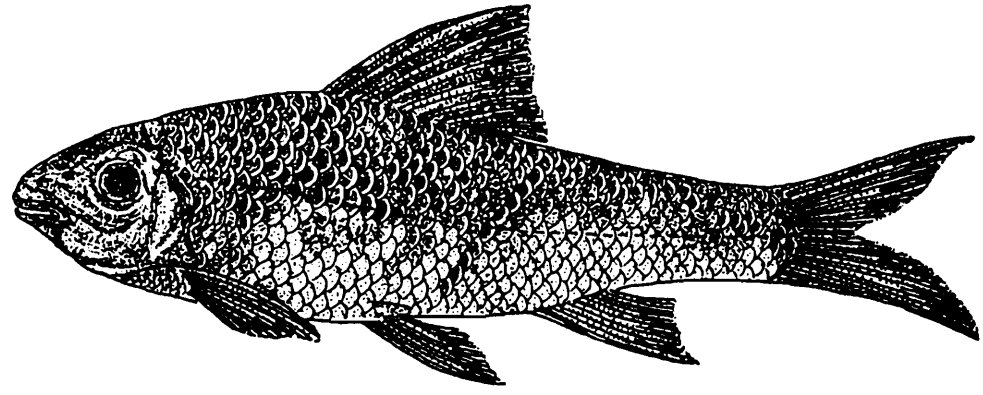


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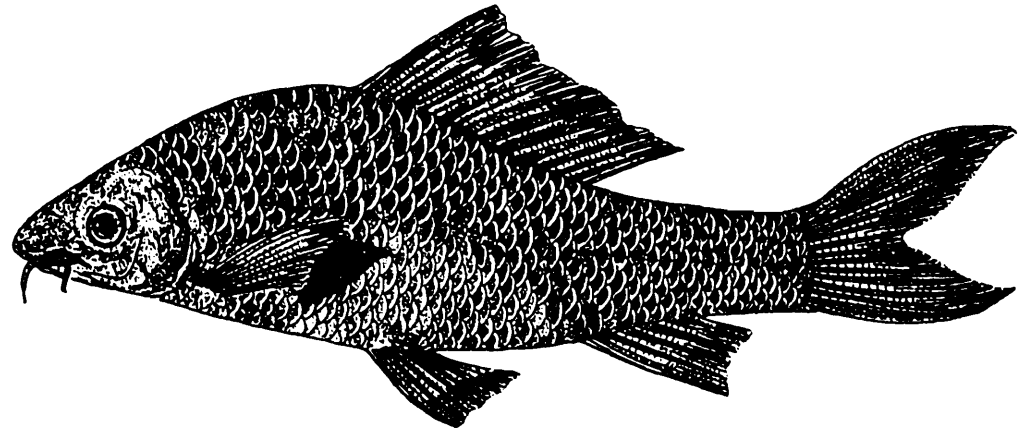


FIG 3

Fig. 1 *Labeo bata* (Hamilton–Buchanan) 2. *Labeo boga* (Hamilton–Buchanan) 3. *Labeo calbasa* (Hamilton–Buchanan)

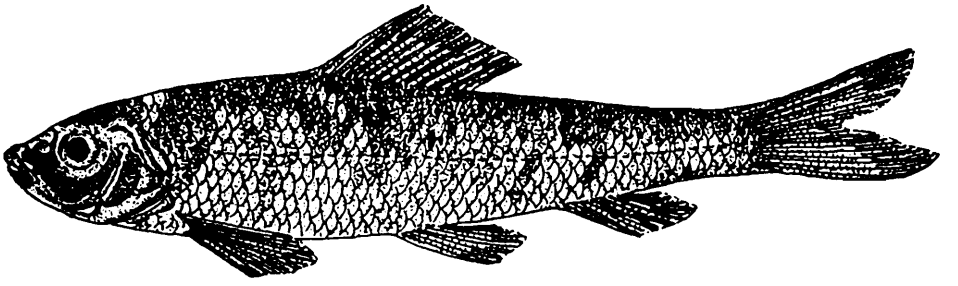


FIG 1

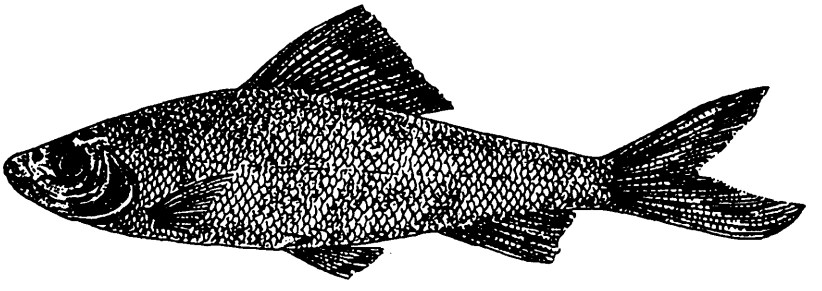


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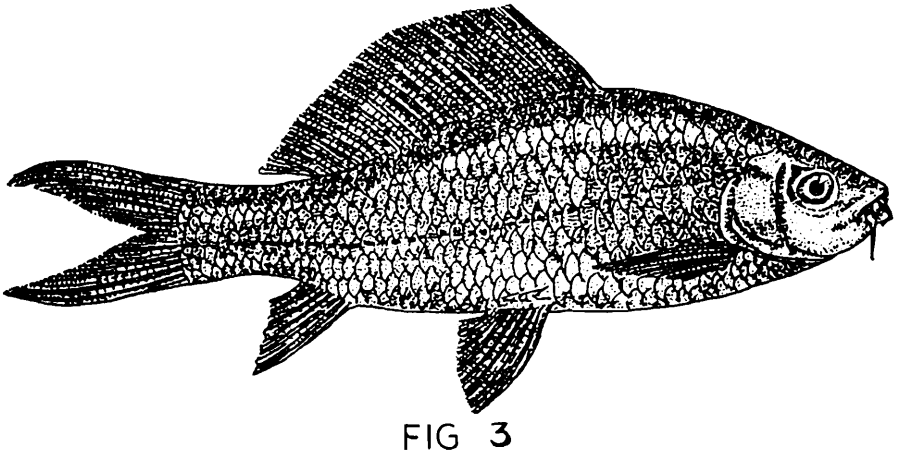


FIG 3

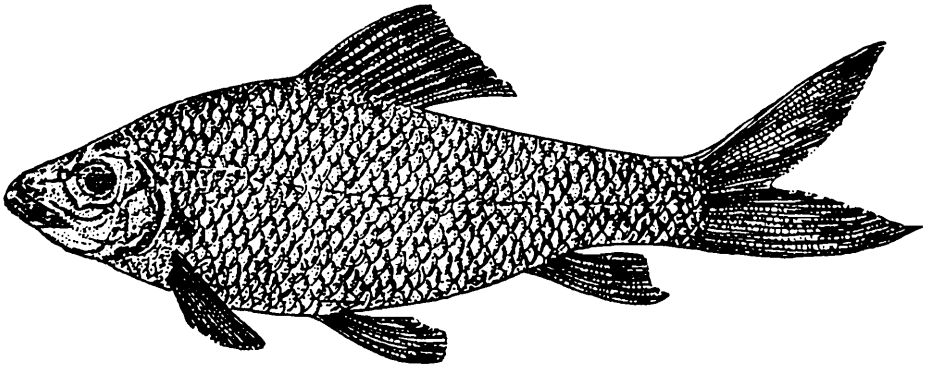


FIG 4

Fig. 1 *Labeo dero* (Hamilton–Buchanan) 2. *Labeo gonius* (Hamilton–Buchanan) 3. *Labeo nandina* (Hamilton–Buchanan)

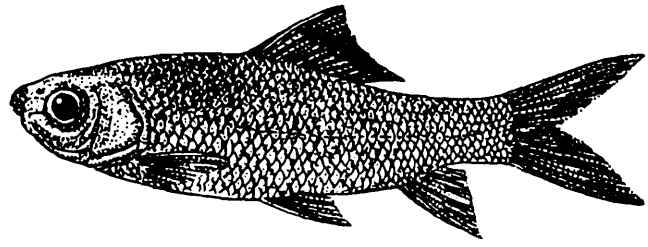


FIG 1

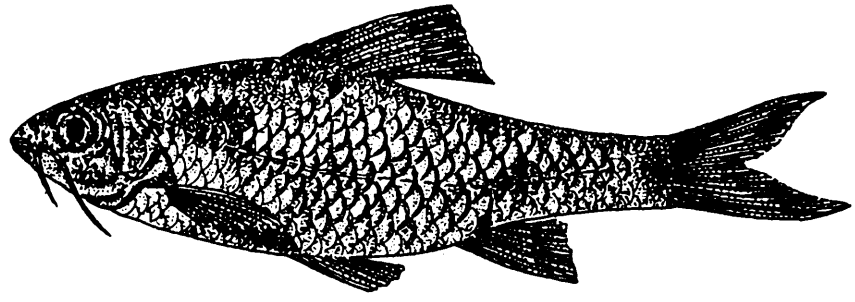


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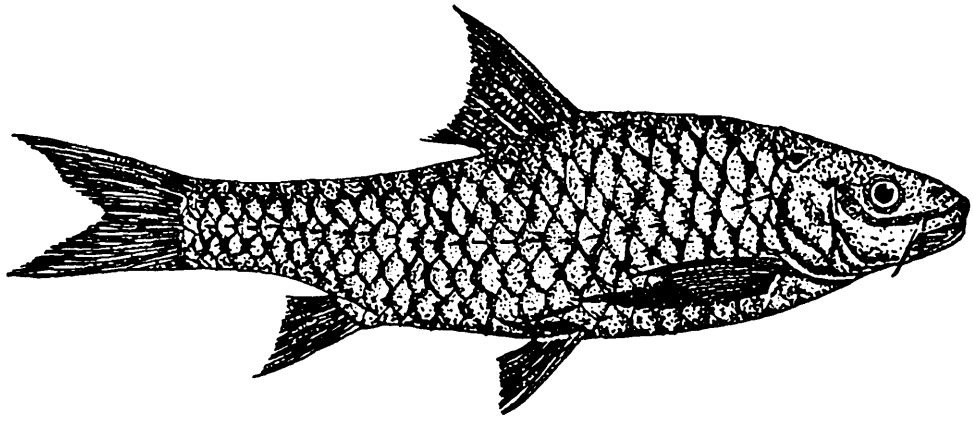


FIG 3

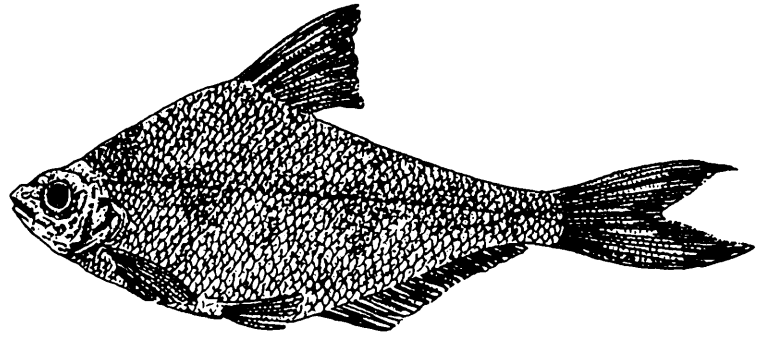


FIG 4

Fig. 1 *Labeo rohita* (Hamilton–Buchanan) 2. *Neolissochilus hexagonolepis* (Mc Clelland) 3. *N. hexastichus (Mc Clelland)* 4. *Osteobroma cotio cotio* (Hamilton–Buchanan)

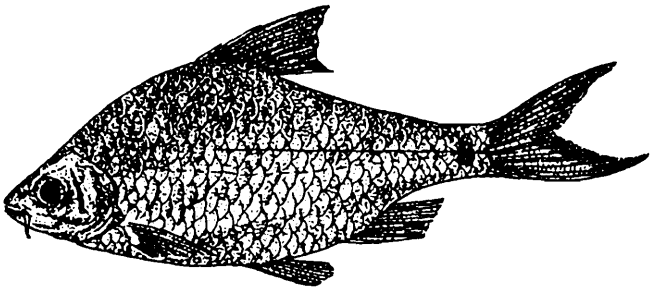


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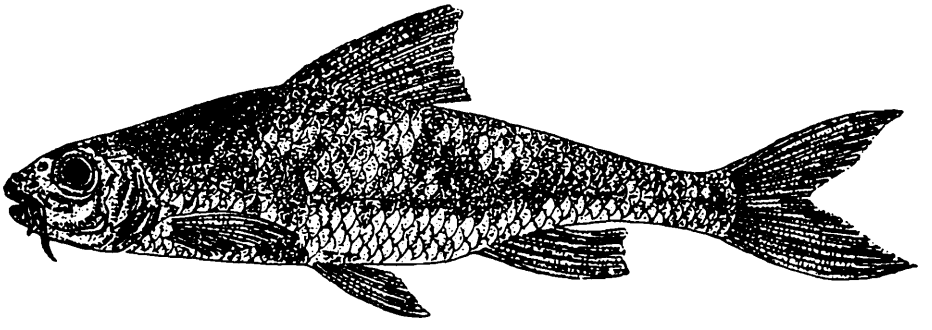


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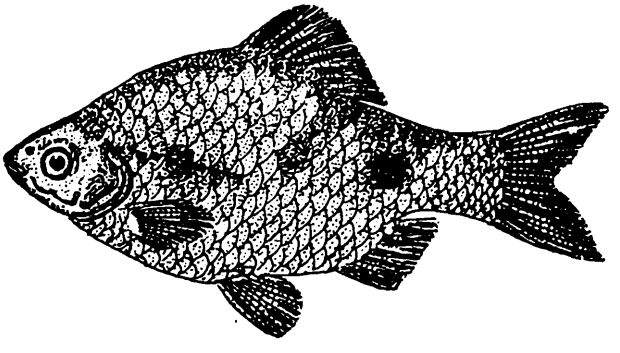


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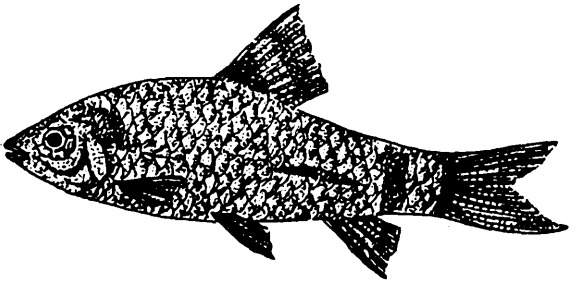


FIG 4

Fig. 1 *Puntius chola* (Hamilton–Buchanan) 2. *P. clavatus* (Mc Clelland) 3. *P. conchonius* (Hamilton–Buchanan) 4. *P. gelius* (Hamilton–Buchanan)

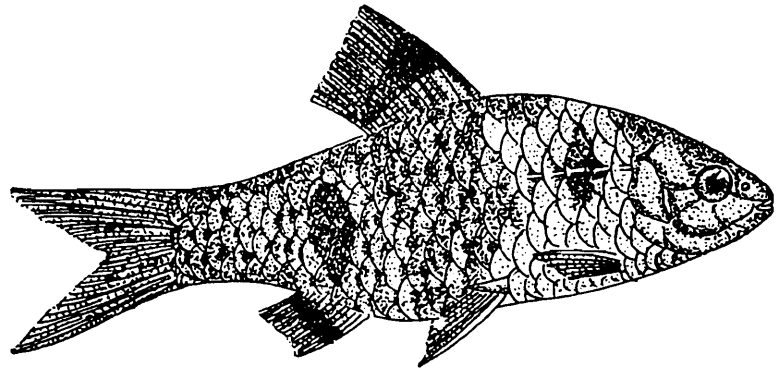


FIG 1

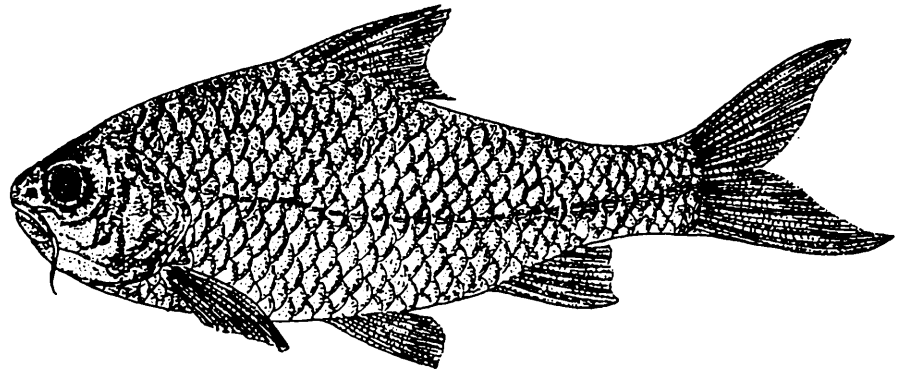


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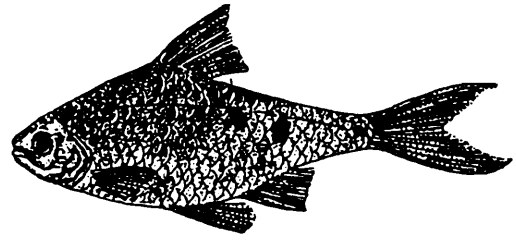


FIG 3

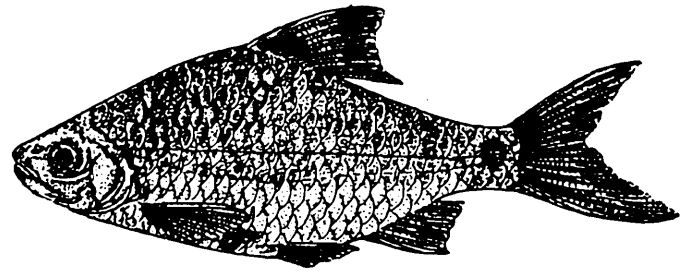


FIG 4

Fig. 1 *Puntius phutunio* (Hamilton–Buchanan) 2. *P. sarana sarana* (Hamilton–Buchanan) 3. *P. shalynius* Yazdani & Talukdar 4. *P. sophore* (Hamilton–Buchanan)

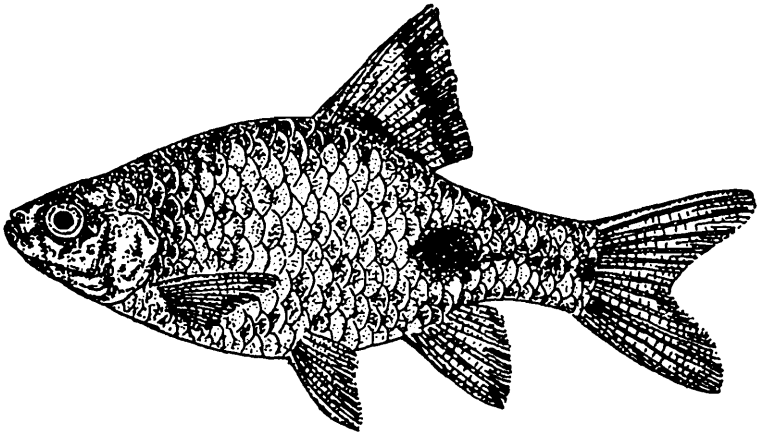


FIG 1

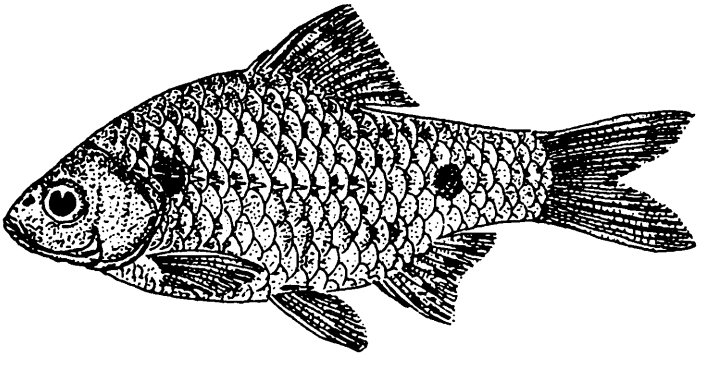


FIG 2

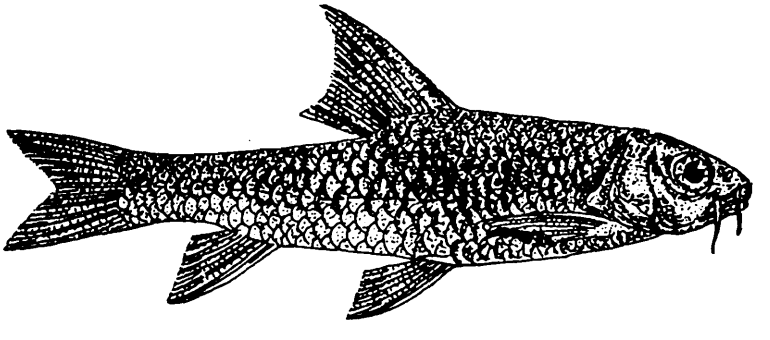


FIG 3

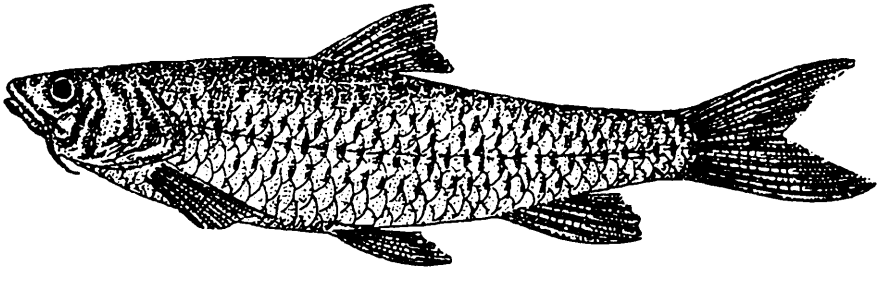


FIG 4

Fig. 1 ***Puntius terio*** (Hamilton–Buchanan) 2. *P. ticto* (Hamilton–Buchanan) 3. ***Tor chelynoides*** (Mc Clelland) 4. *T.putitora* (Hamilton–Buchanan)

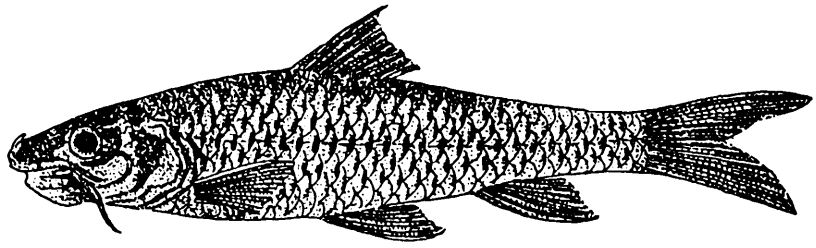


FIG 1

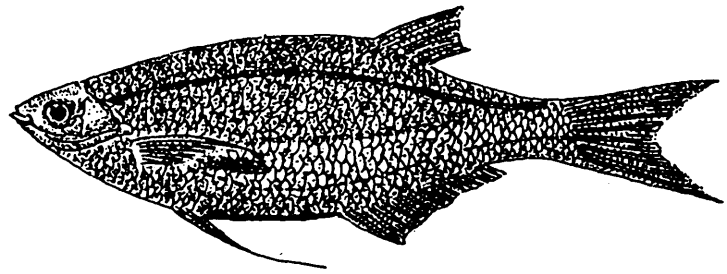


FIG 2

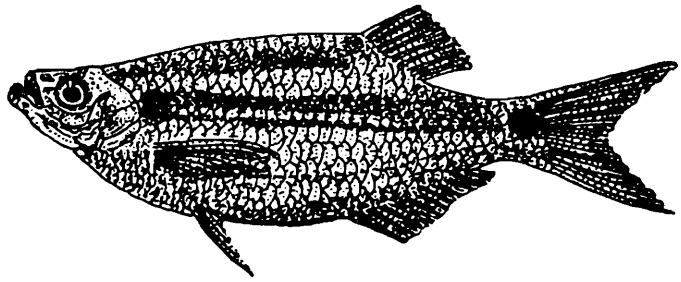


FIG 3

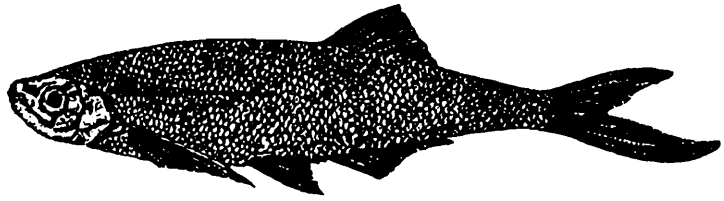


FIG 4

Fig. 1 *Tor tor* (Hamilton–Buchanan) 2. *Chela cachius* (Hamilton–Buchanan) 3. *C. laubuca* (Hamilton–Buchanan) 4. *Salmostoma bacaila* (Hamilton–Buchanan)

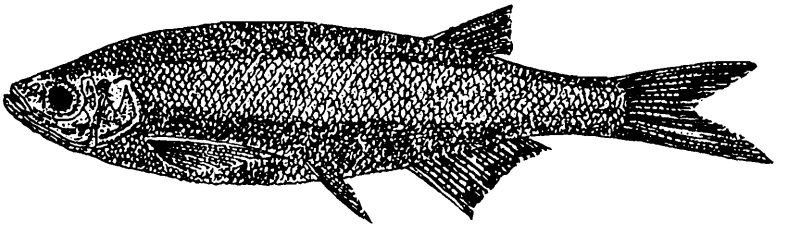


FIG 1

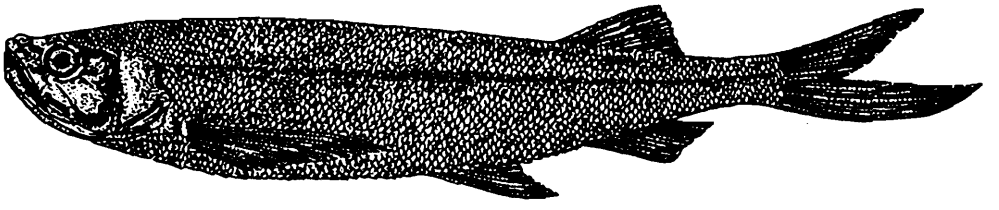


FIG 2

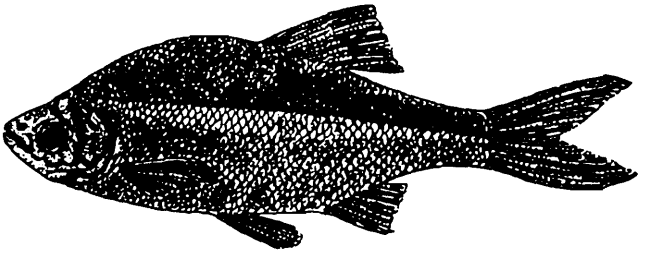


FIG 3

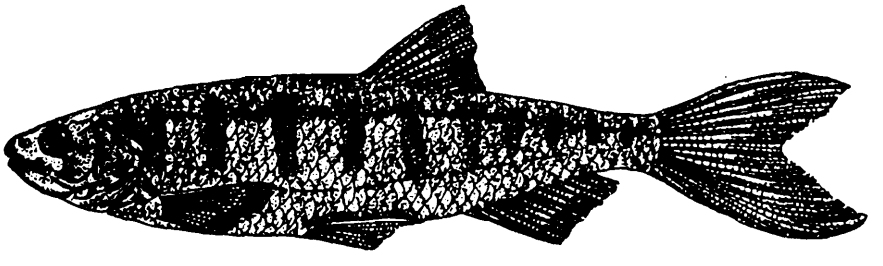


FIG 4

Fig. 1 ***Salmostoma phulo*** (Hamilton–Buchanan) 2. ***Securicula gora*** (Hamilton–Buchanan) **3.** ***Amblypharyngodon mola*** (Hamilton–Buchanan) 4. ***Barilius barila*** (Hamilton–Buchanan)

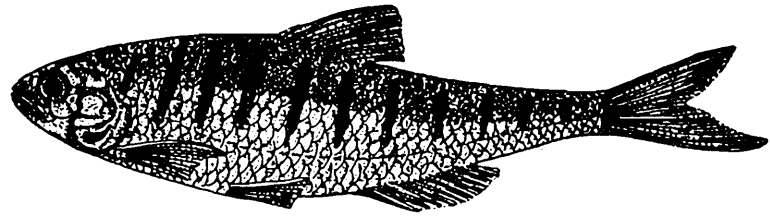


FIG 1

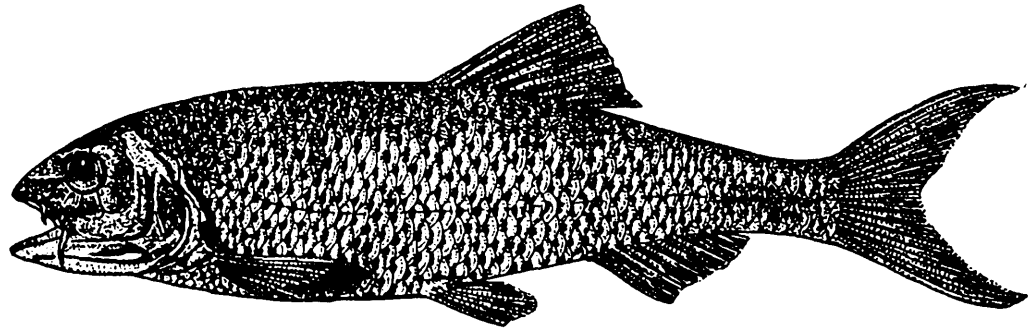


FIG 2

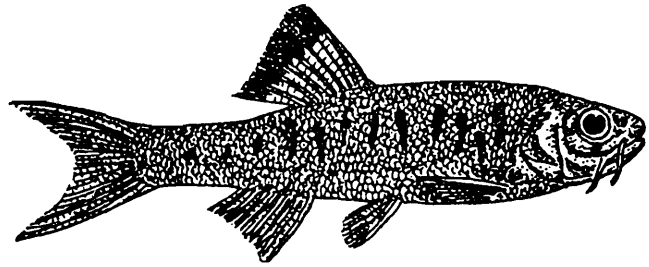


FIG 3

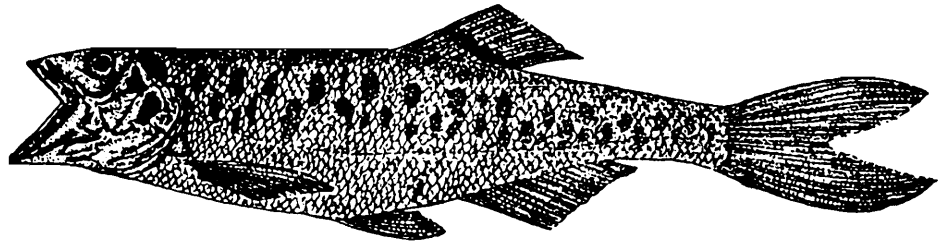


FIG 4

Fig. 1 *Barilius barna* (Hamilton–Buchanan) 2. B. *bendelisis* (Hamilton–Buchanan) *3. B. shacra* (Hamilton–Buchanan) *4. B. tilco* (Hamilton–Buchanan)

PLATE XIII

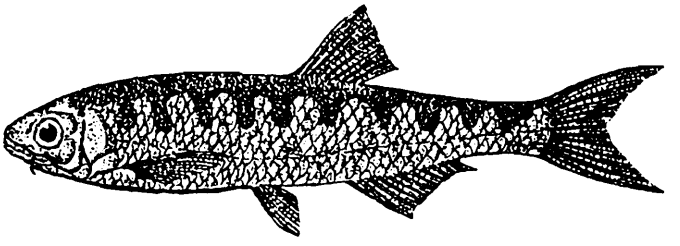


FIG 1

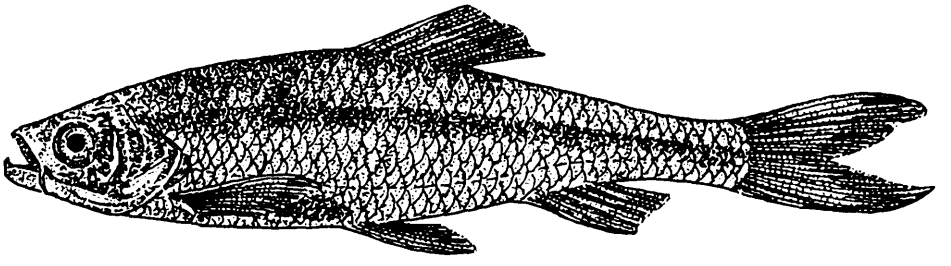


FIG 2

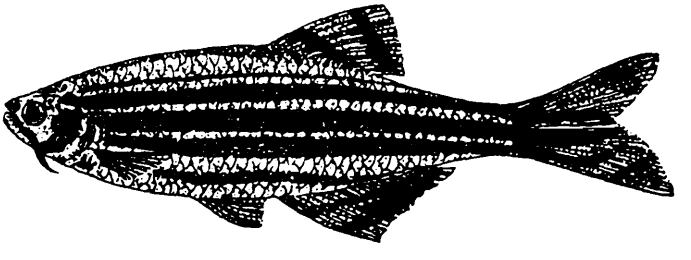


FIG 3

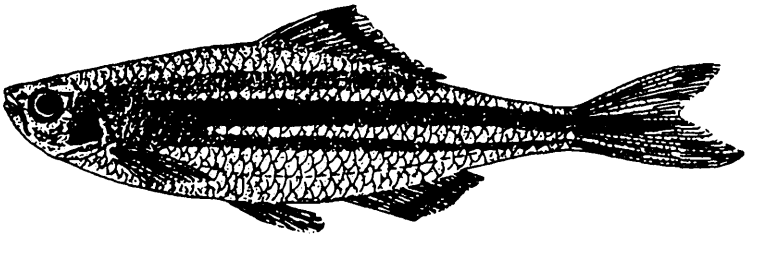


FIG 4

Fig. 1 *Barilius vagra* (Hamilton–Buchanan) 2. *Bengala elanga* (Hamilton–Buchanan) 3. *Brachydanio rerio* (Hamilton–Buchanan) 4. *Danio aequipinnatus* (Mc Clelland)

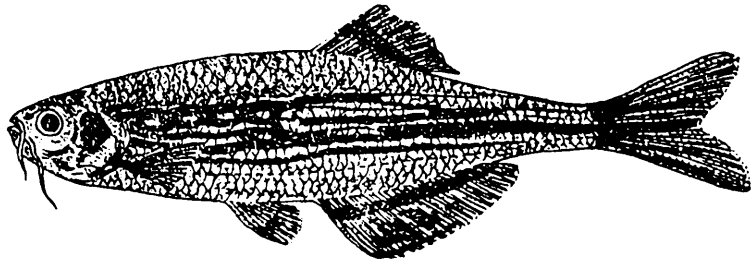


FIG 1

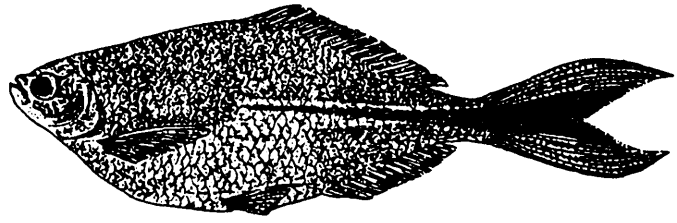


FIG 2

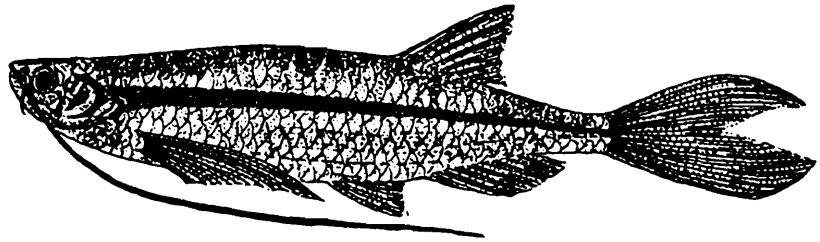


FIG 3

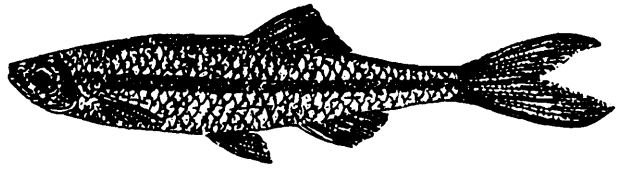


FIG 4

Fig. 1 *Danio dangila* (Hamilton–Buchanan) 2. *D. devario* (Hamilton–Buchanan) 3. ***Esomus danricus*** (Hamilton–Buchanan) 4. *Parluciosoma daniconius* (Hamilton–Buchanan)

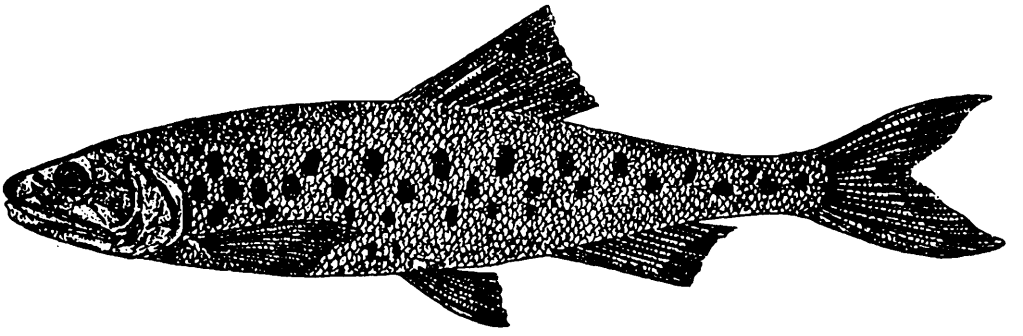


FIG 1

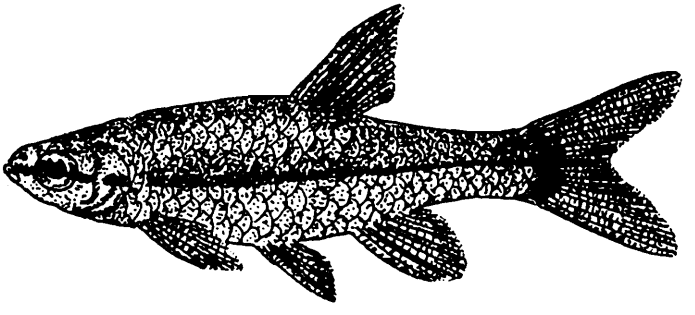


FIG 2

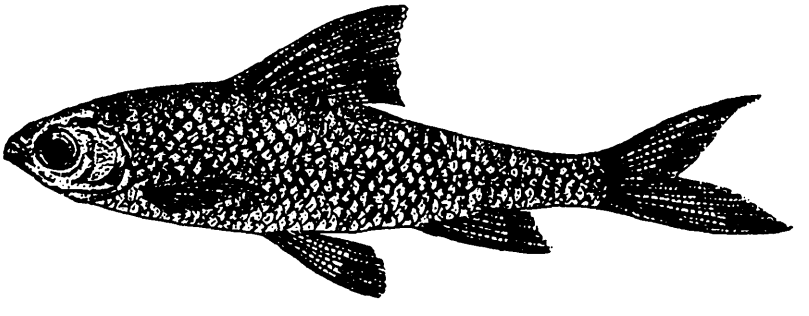


FIG 3

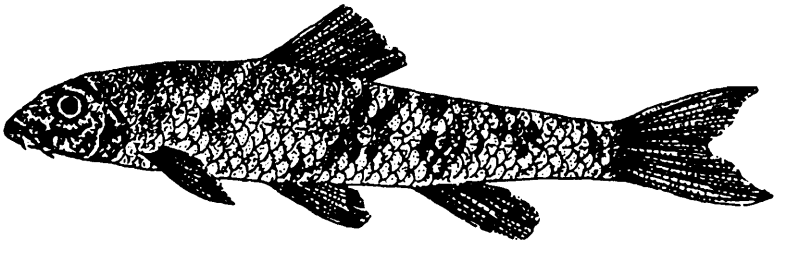


FIG 4

Fig. 1 *Raiamas bola* (Hamilton–Buchanan) 2. *Rasbora rasbora* (Hamilton–Buchanan 3. *Crossocheilus latius latius* (Hamilton–Buchanan) 4. *Garra annandalei* Hora

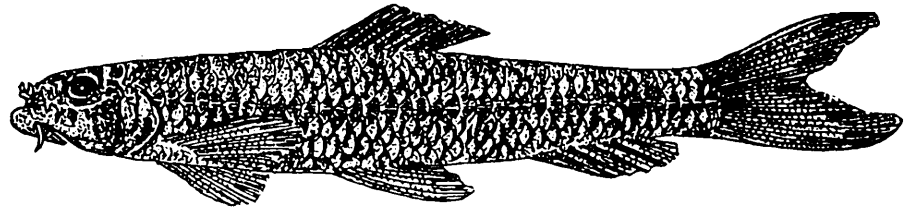


FIG 1

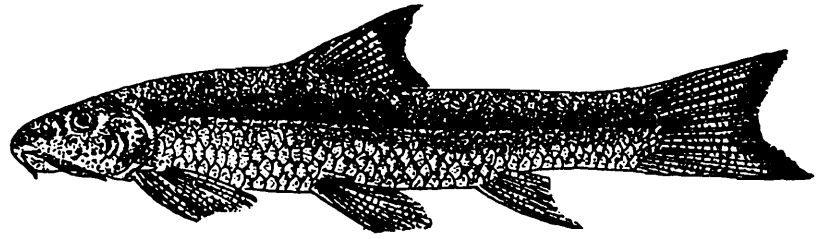


FIG 2

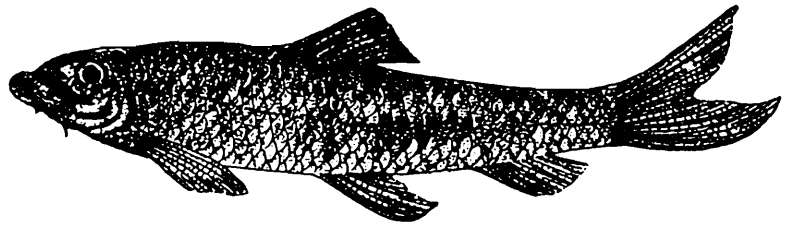


FIG 3

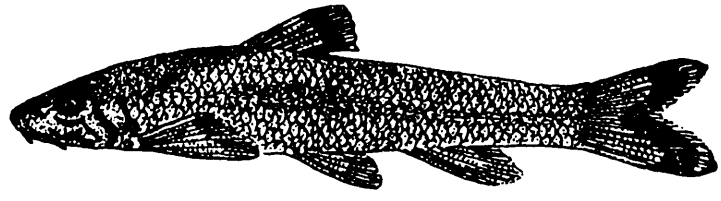


FIG 4

Fig. 1 *Garra gotyla gotyla* (Gray) 2. *G. kempi* Hora 3. *G. lamta* (Hamilton–Buchanan) 4. *G. lissorhynchus* (Mc Clelland)

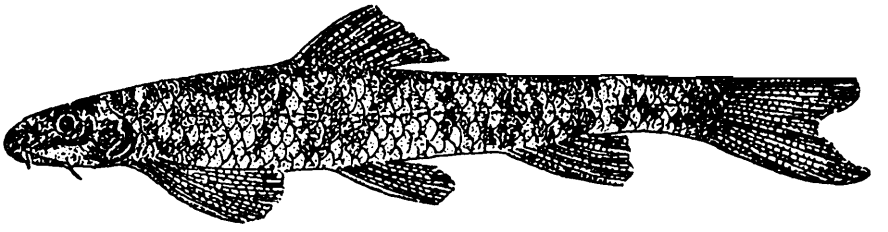


FIG 1

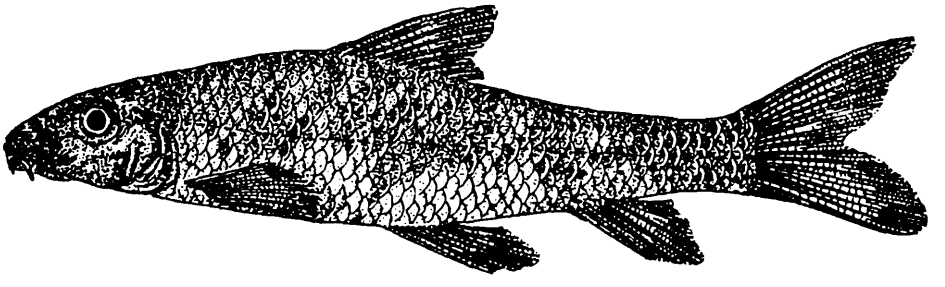


FIG 2

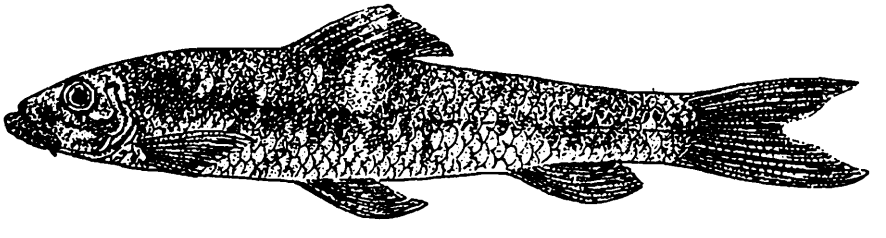


FIG 3

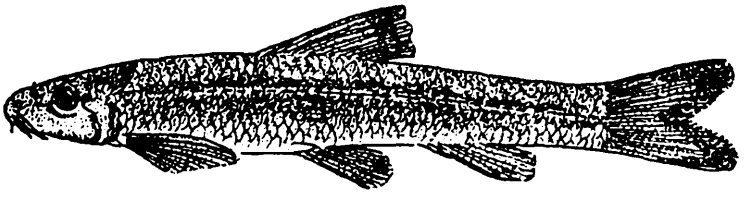


FIG 4

Fig. 1 *Garra mc Clellandi* (Jerdon) 2. *G. naganensis* Hora 3. *G. nasuta* (Mc Clelland) 4. *G. rupecula* (Mc Clelland)

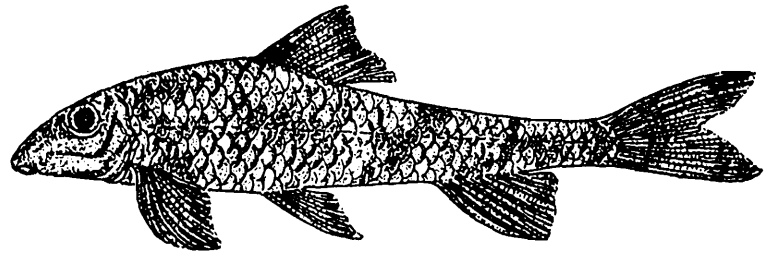


FIG 1

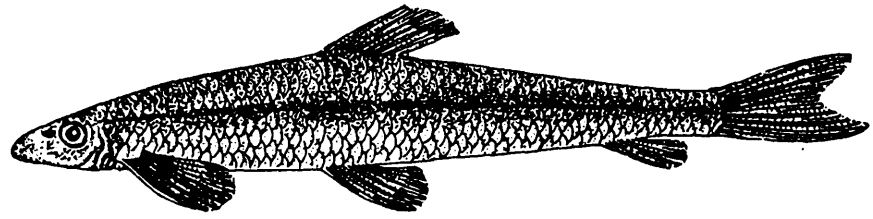


FIG 2

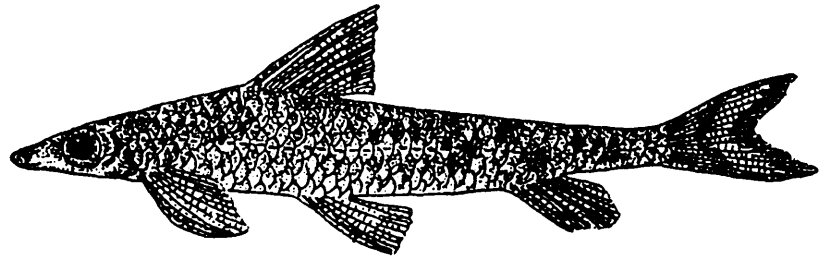


FIG 3



FIG 4

Fig. 1 *Psilorhynchus balitora* (Hamilton–Buchanan) 2. *P. homaloptera* Hora & Mukherji 3. *P. sucalio* (Hamilton–Buchanan) 4. *Balitora brucei* Gray



FIG 1



FIG 2

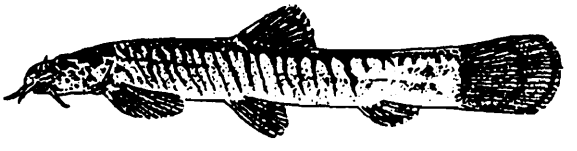


FIG 3

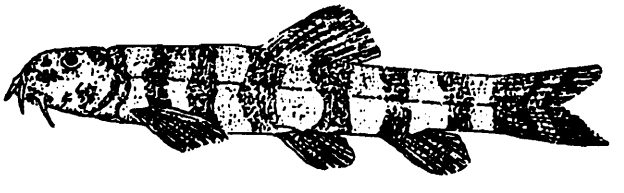


FIG 4

Fig. 1 *Aborichthys elongatus* Hora 2. *A. garoensis* Hora 3. *A. kempi* Chandhuri 4. *Nemacheilus beavani* Gunther

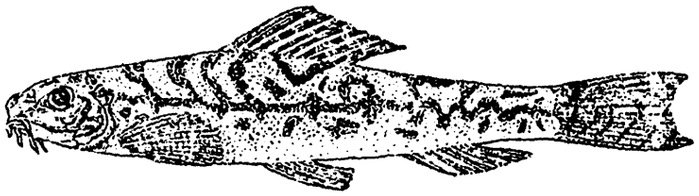


FIG 1

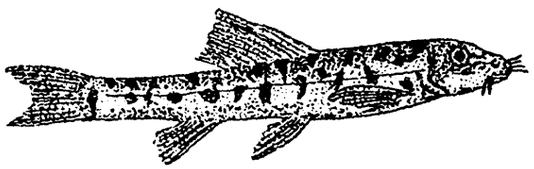


FIG 2

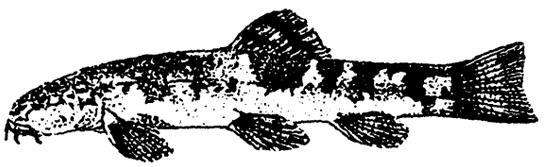


FIG 3

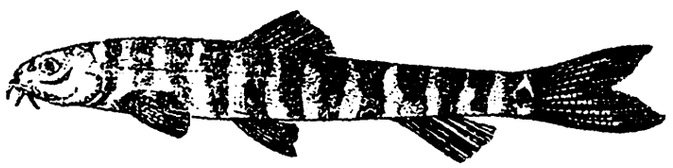


FIG 4

Fig. 1 *Nemacheilus botia* (Hamilton–Buchanan) 2. *Nemacheilus corica* (Hamilton–Buchanan) 3. *Nemacheilus devdevi* (Hora) 4. *Nemacheilus elongatus* (Sen and Nalbant)

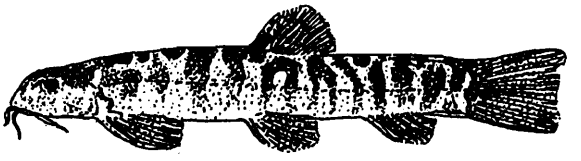


FIG 1



FIG 2



FIG 3

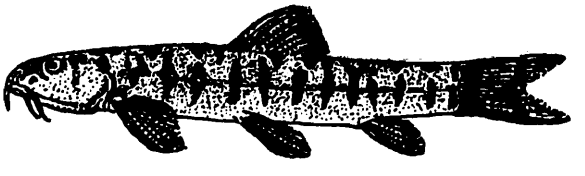


FIG 4

Fig. 1 *Nemacheilus multifasciatus* (Day) 2. *Nemacheilus reticulofasciatus* (Singh & Banarescu) *3. Nemacheilus savona* (Hamilton–Buchanan) 4. *Nemacheilus scaturigina* (Mc Clelland)



FIG 1

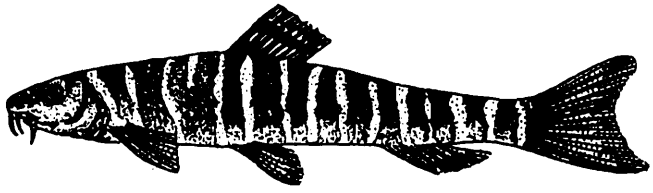


FIG 2

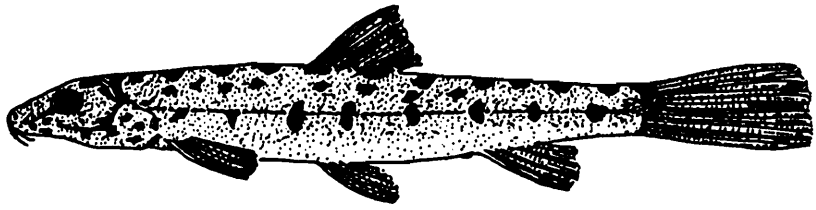


FIG 3

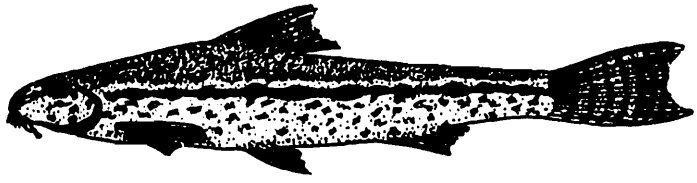


FIG 4

Fig. 1 *Nemacheilus sijuensis* (Memon) 2. *Nemacheilus sikmaiensis* (Hora) 3. *Lepidocephalus annandalei* (Chandhriri) 4. *L. bermorei* (Blyth)

PLATE XXIII

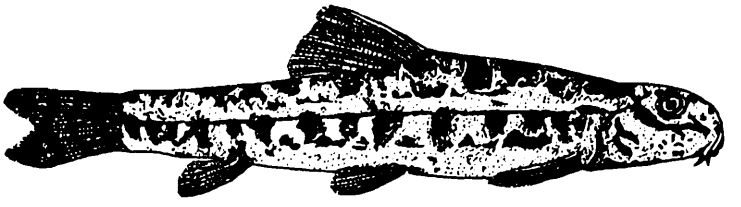


FIG 1

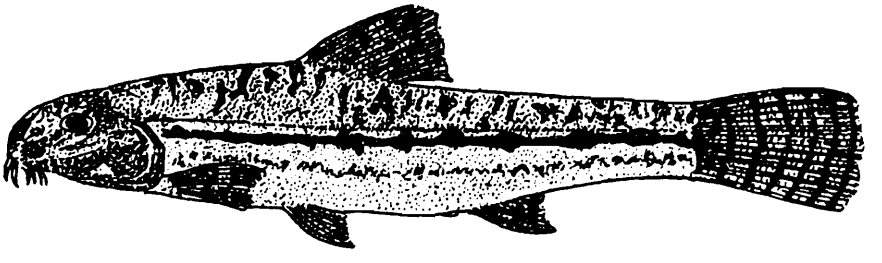


FIG 2

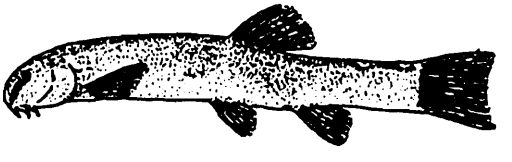


FIG 3



FIG 4

Fig. 1 *Lepidocephalus caudofurcatus* (Tilak & Hussain) 2. *Lepidocephalus guntea* (Hamilton–Buchanan) 3. *L'epidocephalus irrorata* (Hora) 4. *Pangio pangia* (Hamilton–Buchanan)

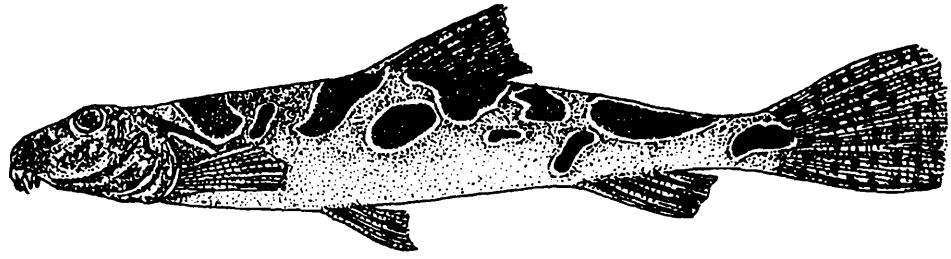


FIG 1



FIG 2

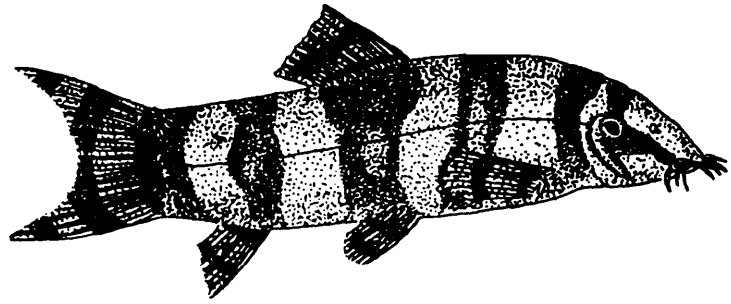


FIG. 3

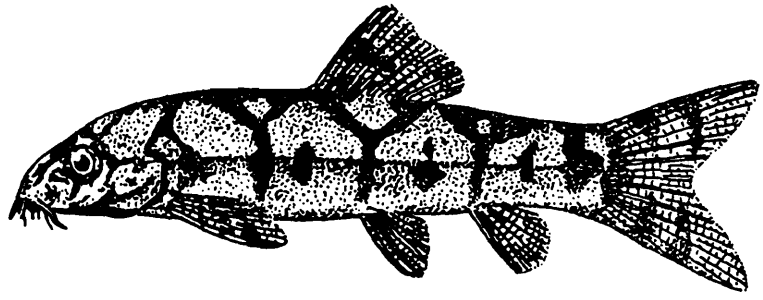


FIG 4

Fig. 1 *Somileptes gongota* (Hamilton–Buchanan) 2. *Botia dario* (Hamilton–Buchanan) 3 *Botia histrionica* (Blyth) 4 *Botia lohachata* (Choudhuri)

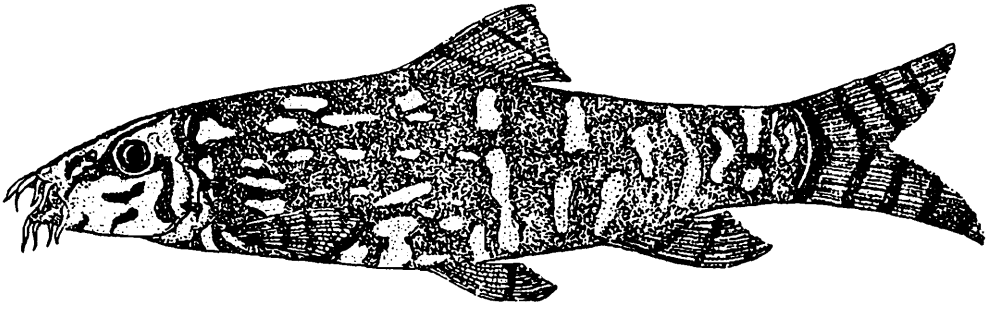


FIG 1

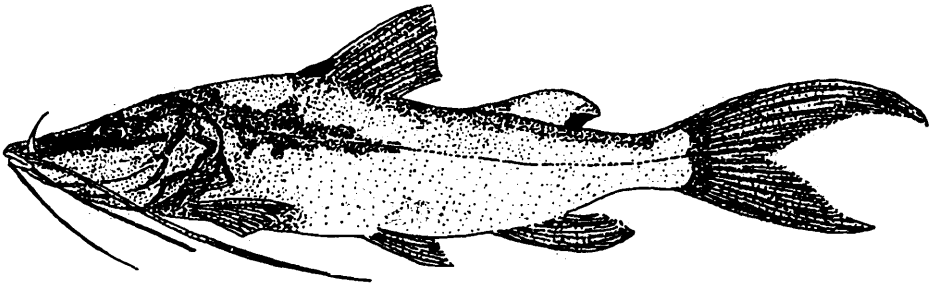


FIG 2

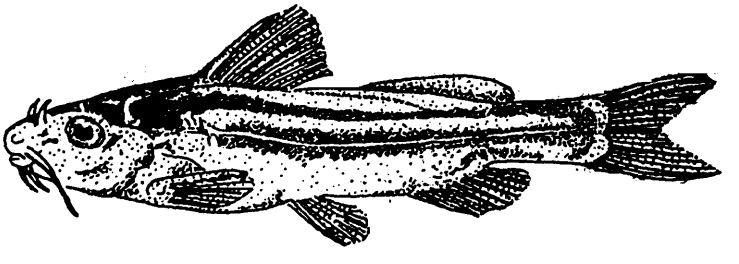


FIG 3

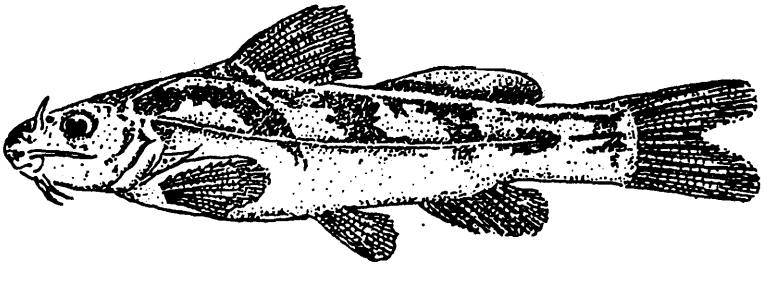


FIG 4

Fig. 1 *Botia rostrata* (Gunther) 2. *Aorichthys seenghala* (Sykes) 3. *Batasio batasio* (Hamilton Buchanan) 4. *Batasio tengana* (Hamilton–Buchanan)

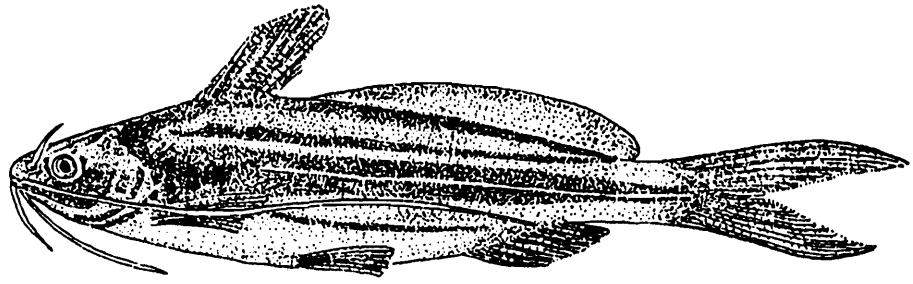


FIG 1

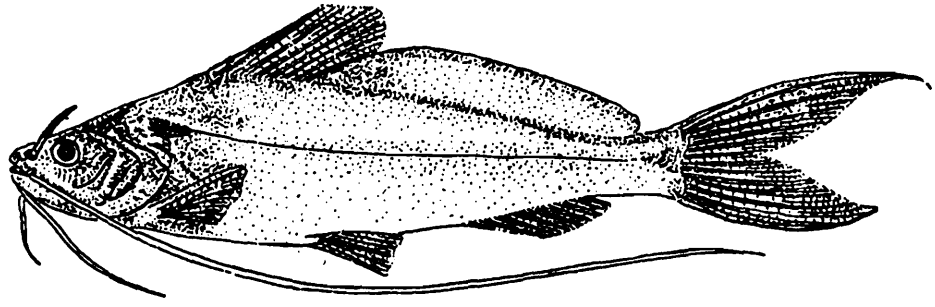


FIG 2

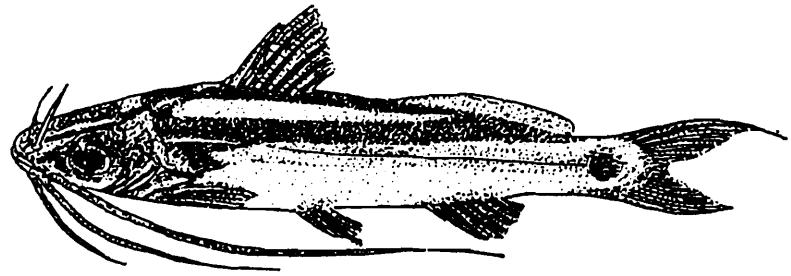


FIG 3

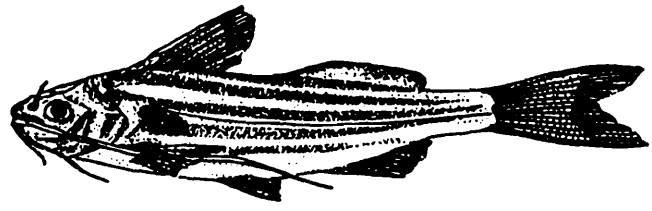


FIG 4

Fig. 1 *Mystus bleekeri* (Day) 2. *Mystus cavasius* (Hamilton–Buchanan) 3. *Mystus montanus* (Jerdon) 4. *Mystus vittatus* (Bloch)

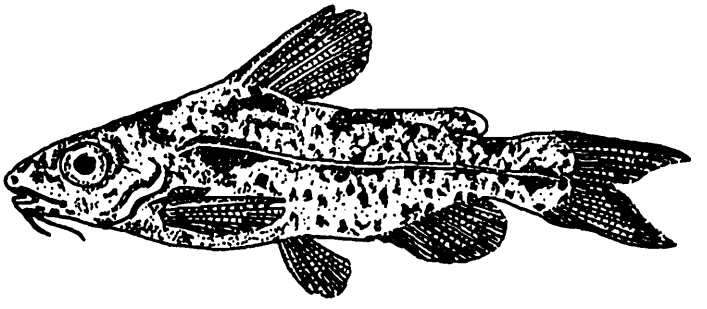


FIG 1

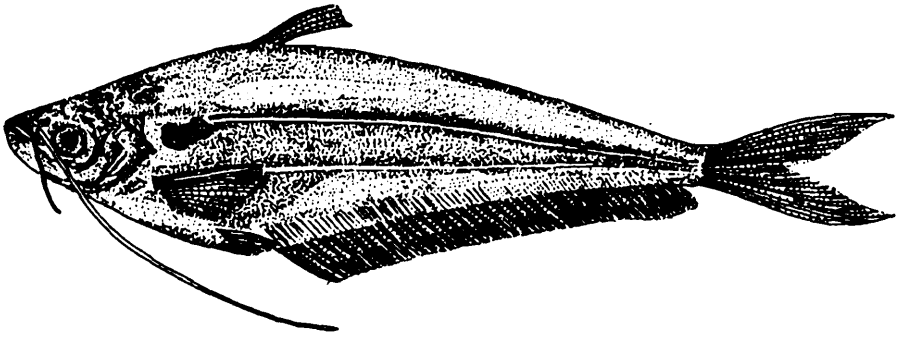


FIG 2

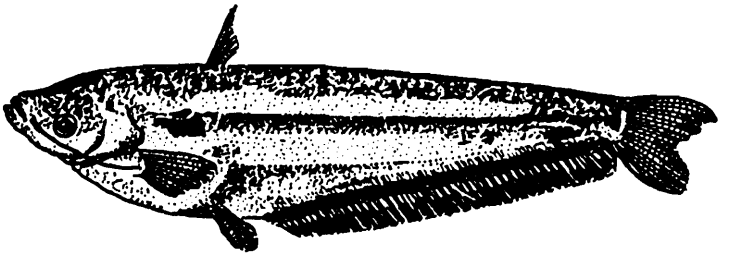


FIG 3

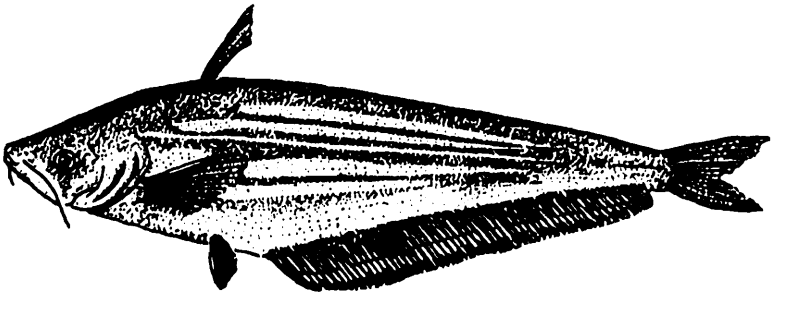


FIG 4

Fig. 1 *Rama chandramara* (Hamilton–Buchanan) 2. *Ompok bimaculatus* (Bloch) 3. *Ompok pabda* (Hamilton–Buchanan) 4. *Ompok pabo* (Hamilton–Buchanan)

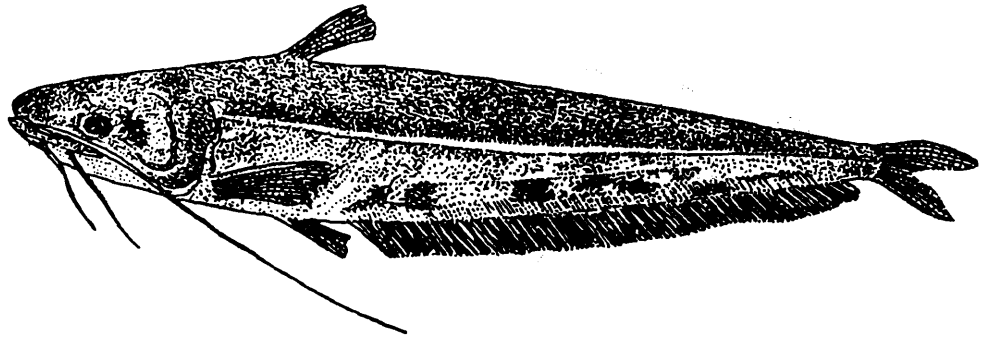


FIG 1

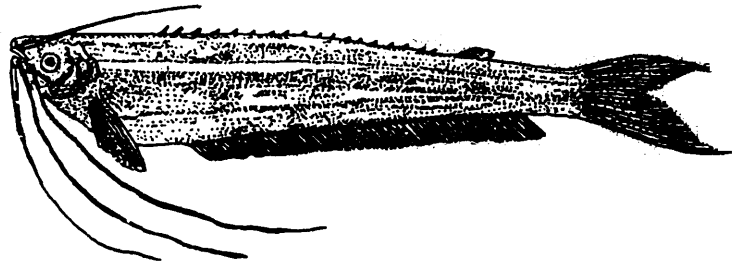


FIG 2

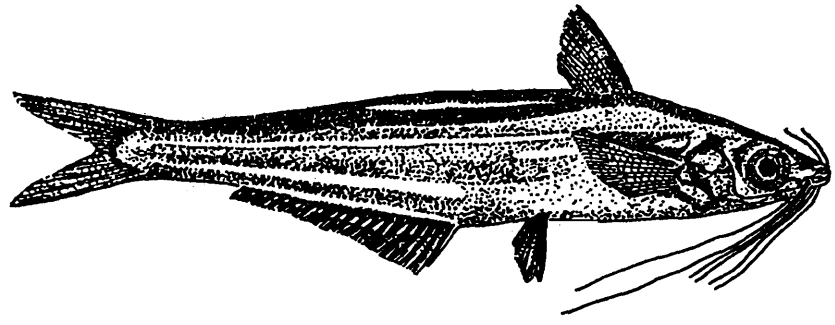


FIG 3

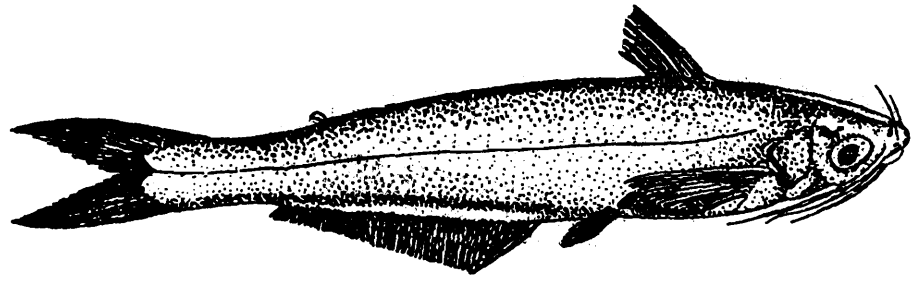


FIG 4

Fig. 1 *Wallago attu* (Schneider) 2. *Ailia coila* (Hamilton–Buchanan) 3. *Clupisoma garua* (Hamilton–Buchanan) 4. *Eutropuchthys murius* (Hamilton–Buchanan)

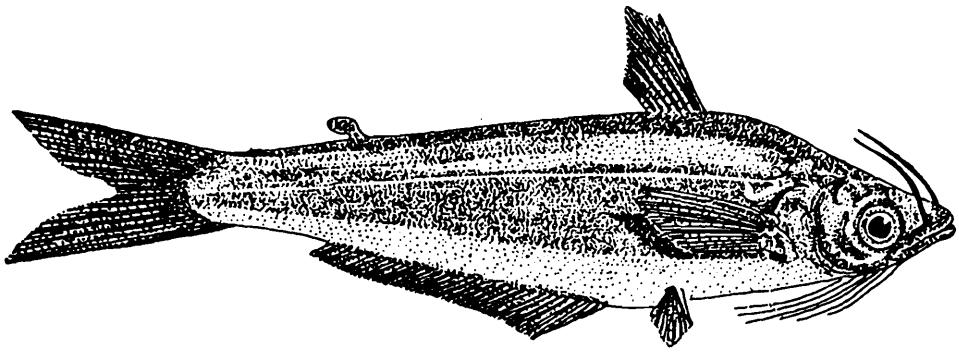


FIG 1

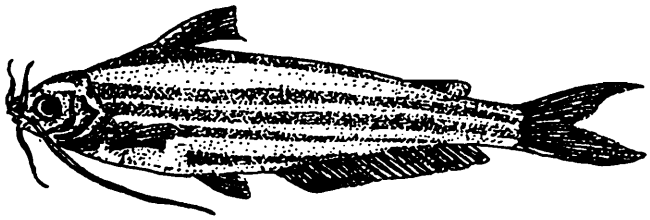


FIG 2

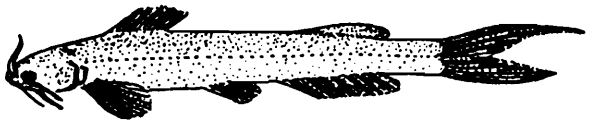


FIG 3

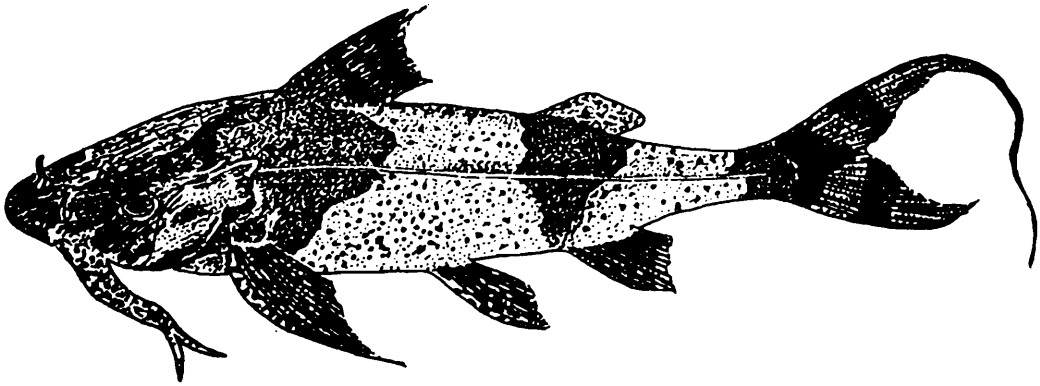


FIG 4

Fig. 1 *Eutropuchthys vacha* (Hamilton–Buchanan) 2. *Pseudeutropius atherinoides* (Bloch) 3. *Amblyceps mangois* (Hamilton–Buchanan) 4. *Bagarius bagarius* (Hamilton–Buchanan)

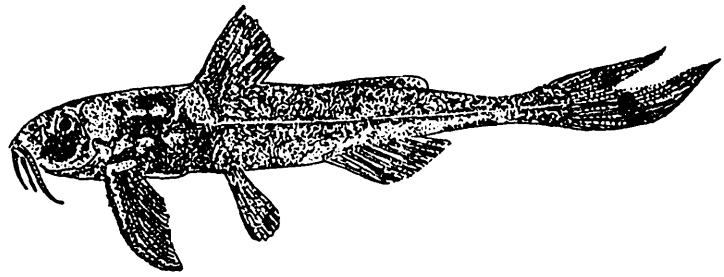


FIG 1

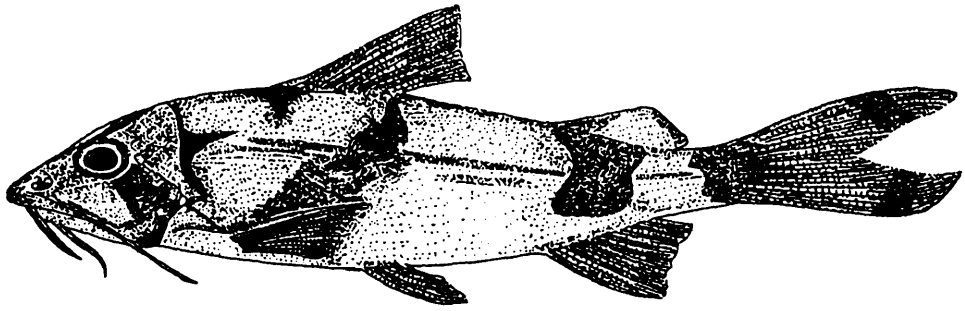


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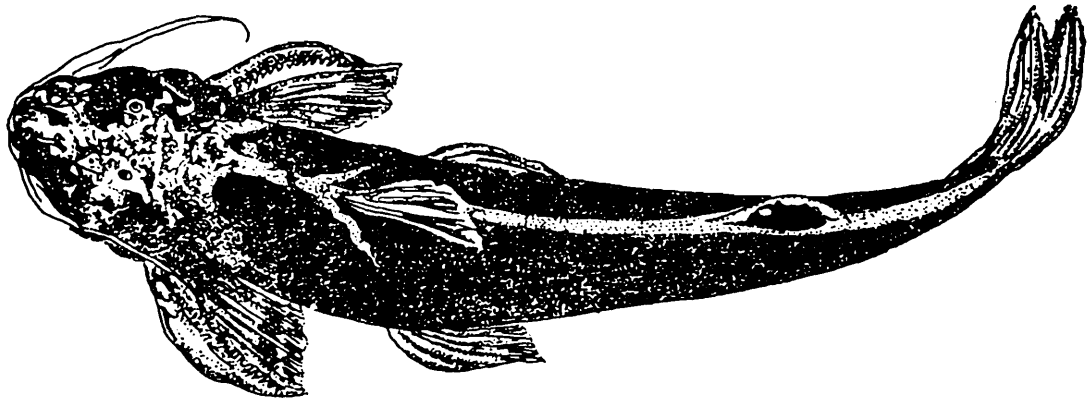


FIG 3

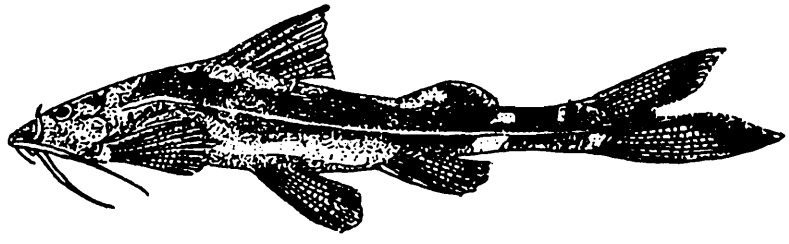


FIG 4

Fig. 1 *Conta conta* (Hamilton–Buchanan) 2. *Gagata cenia* (Hamilton–Buchanan) 3. *Glyptothorax cavia* (Hamilton–Buchanan) 4. *Glyptothorax striatus* (Mc Clelland)

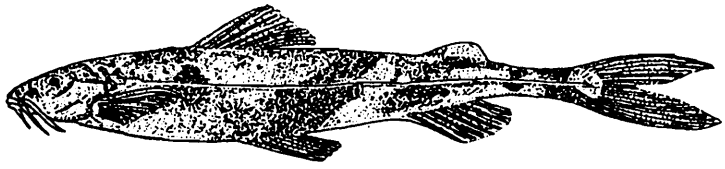


FIG 1

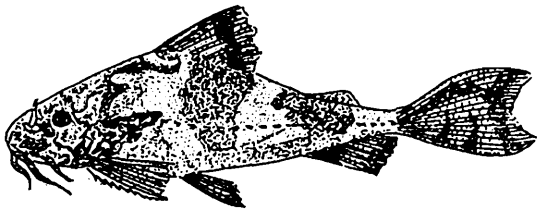


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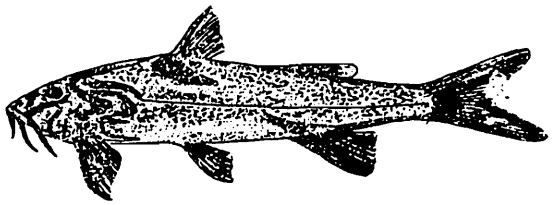


FIG 3

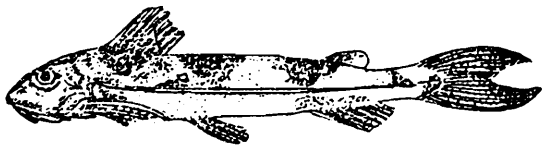


FIG 4

Fig. 1 *Glyptothorax telchitta* (Hamilton–Buchanan) 2. *Hara hara* (Hamilton–Buchanan) 3. *Laguvia shawi* Hora 4. *Nangra viridescens* (Hamilton–Buchanan)

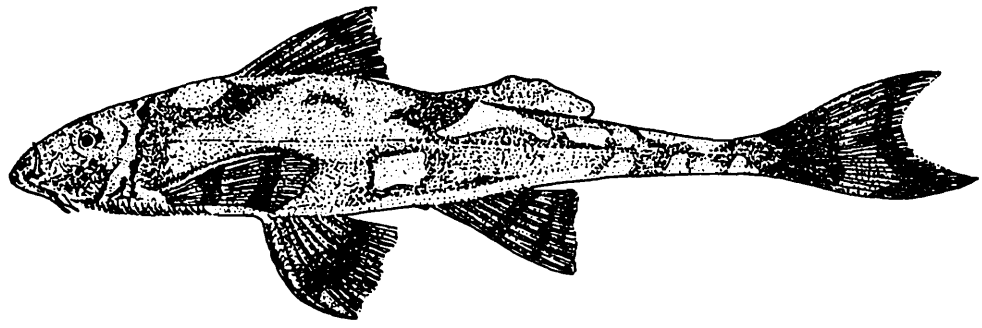


FIG 1

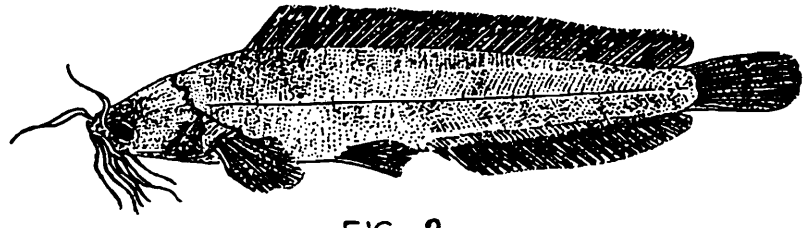


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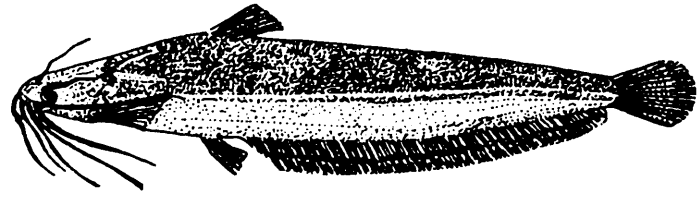


FIG 3

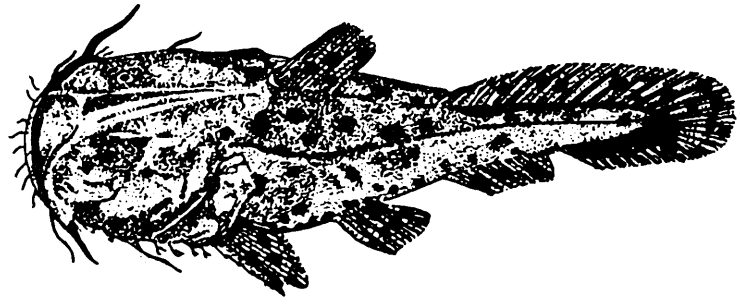


FIG 4

Fig. 1 *Pseudecheneis sulcatus* (Mc Clelland) 2. *Clarias batrachus* (Linuaeus) 3. *Heteropneustes fossilis* (Bloch) 4. *Chaca chaca* (Hamilton–Buchanan)

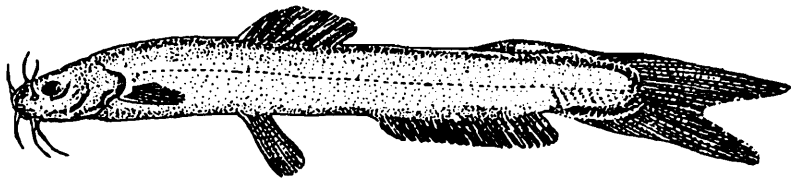


FIG 1



FIG 2



FIG 3

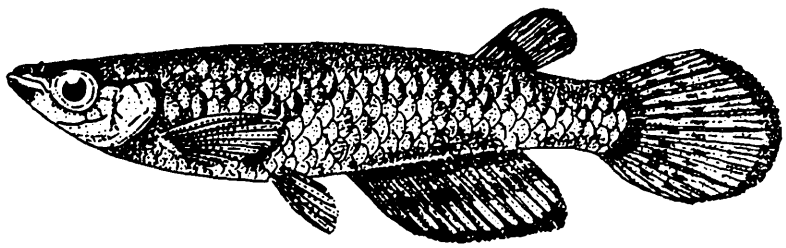


FIG 4

Fig. 1 *Olyra horai* (Prashad & Mukerji) 2. *O. longicaudata* Mc Clelland 3. *Xenentodon cancila* (Hamilton–Buchanan) 4. *Aplocheilus panchax* (Hamilton–Buchanan)

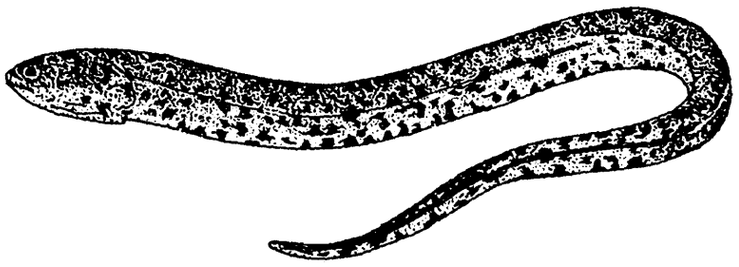


FIG 1

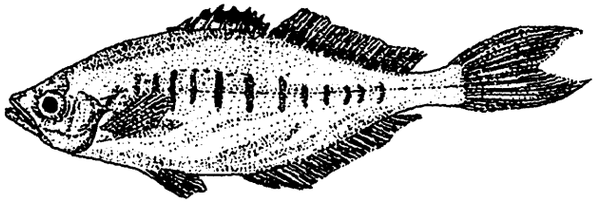


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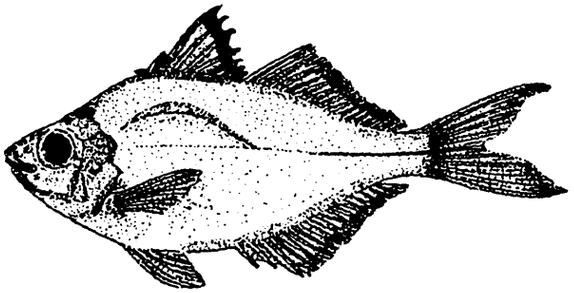


FIG 3

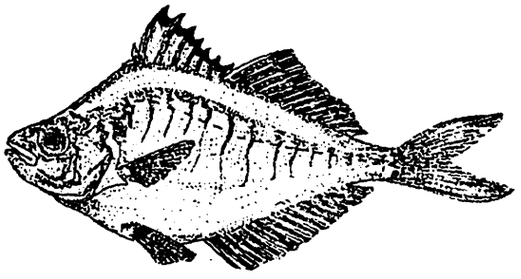


FIG 4

Fig. 1 *Monopterus (Amphipnous) cuchia* (Hamilton–Buchanan) 2. *Chanda nama* (Hamilton–Buchanan) 3. *Pseudambassis baculis* (Hamilton–Buchanan) 4. *P. ranga* (Hamilton–Buchanan)

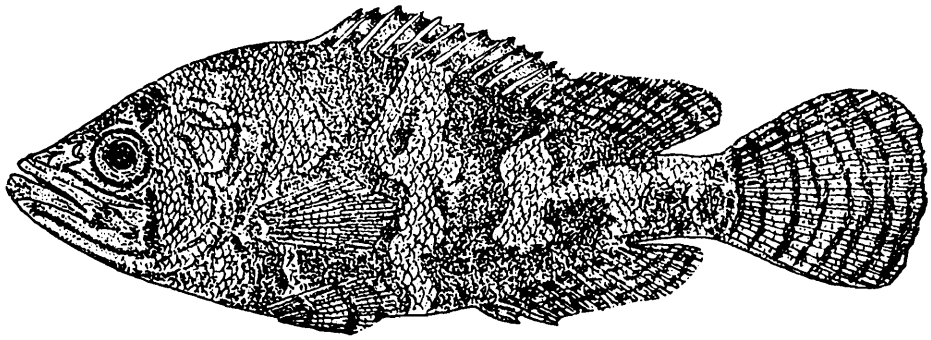


FIG 1

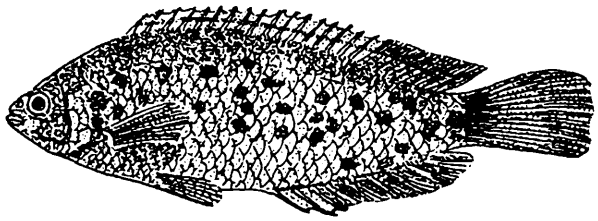


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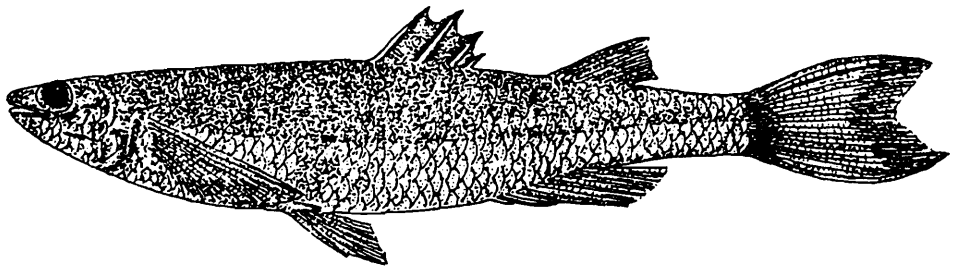


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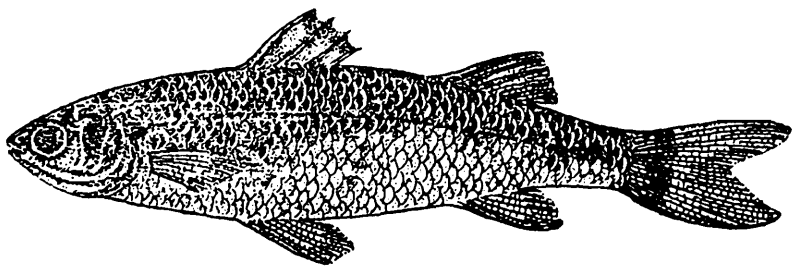


FIG 4

Fig. 1 *Nandus nandus* (Hamilton–Buchanan) 2. *Badis badis* (Hamilton–Buchanan) 3. *Rhinomugil corsula* (Hamilton–Buchanan) 4. *Sicamugil cascasia* (Hamilton–Buchanan)

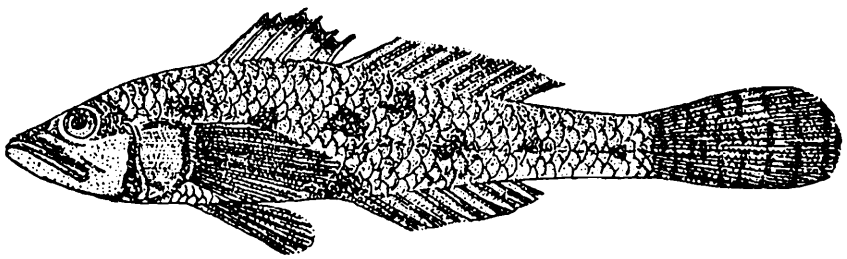


FIG 1

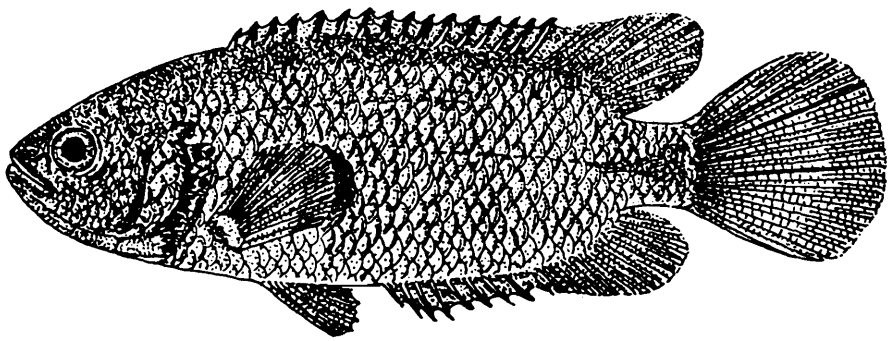


FIG 2

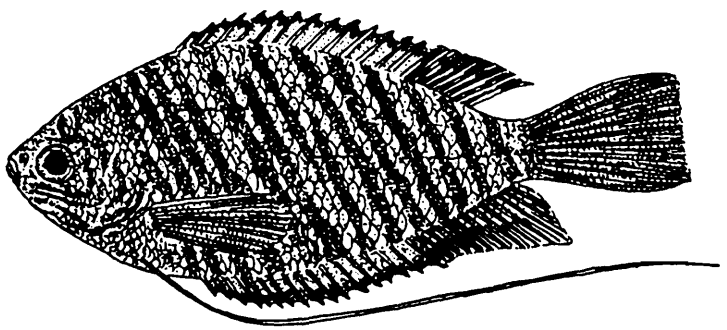


FIG 3

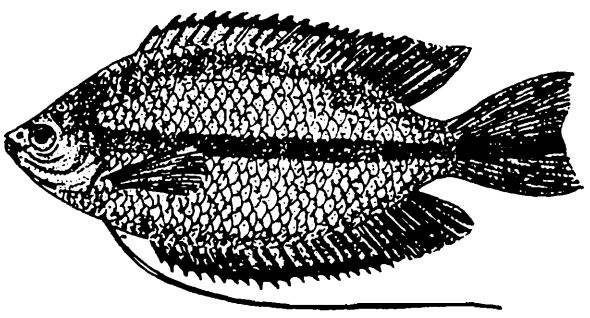


FIG 4

Fig. 1 *Glossogobius giuris* (Hamilton–Buchanan) 2. *Anabas testudineus* (Bloch) 3. *Colisa fasciatus* (Schneider) 4. *C.sota* (Hamilton–Buchanan)

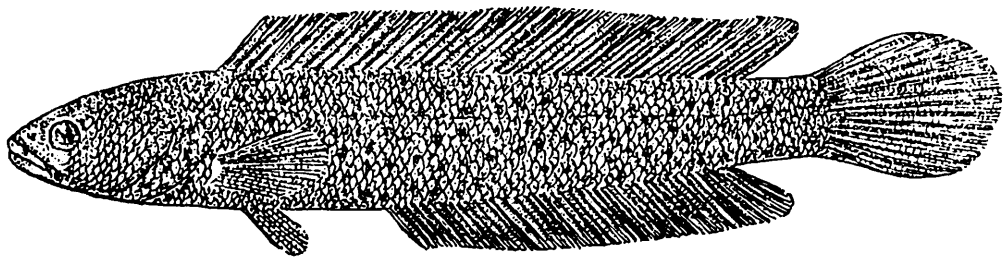


FIG 1

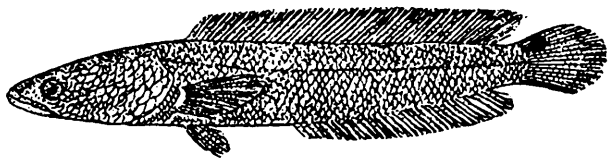


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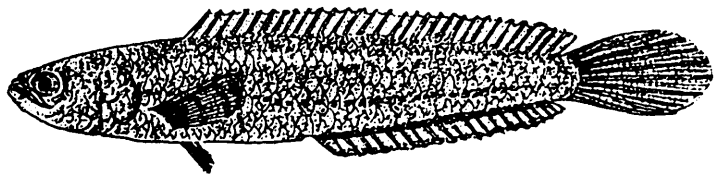


FIG 3

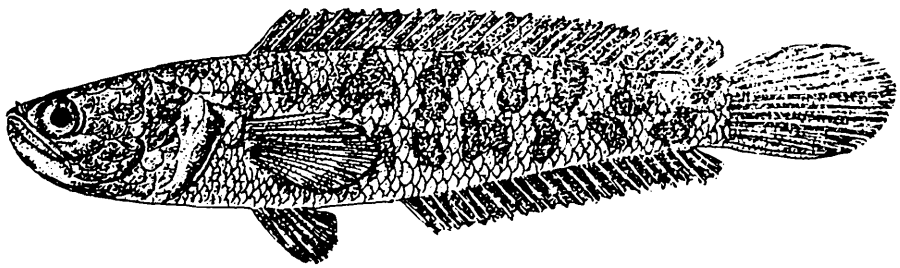


FIG 4

Fig. 1 *Channa barca* (Hamilton–Buchanan) 2. *C. marulius* (Hamilton–Buchanan) 3. *C. orientalis* (Bloch & Schneider) 4. *C. punctatus* (Bloch)

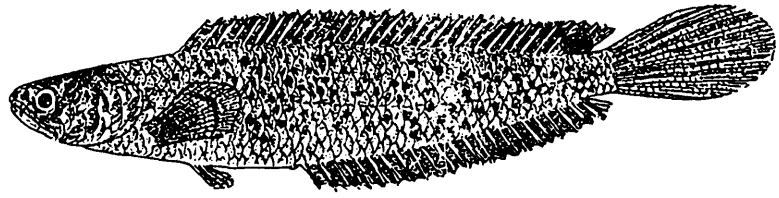


FIG 1

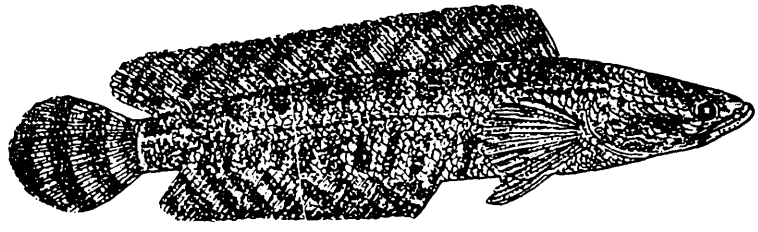


FIG 2

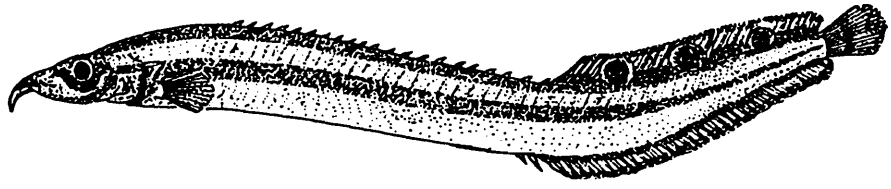


FIG 3

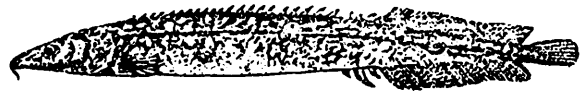


FIG 4

Fig. 1 *Channa stewartii* (Payfair) 2. *C. striatus* (Bloch) 3. *Macrognathus aral* (Bloch & Schneider) 4. *M. pancalus* (Hamilton–Buchanan)

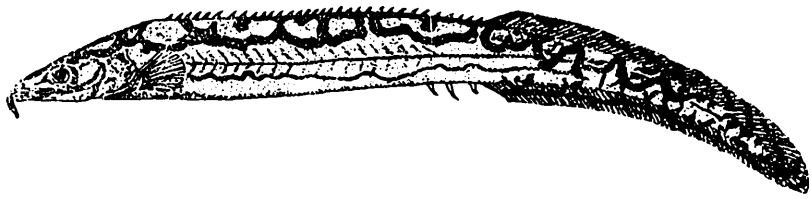


FIG 1

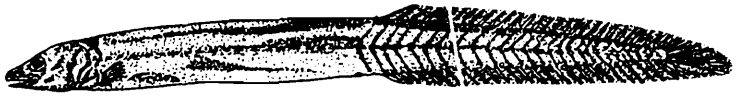


FIG 2

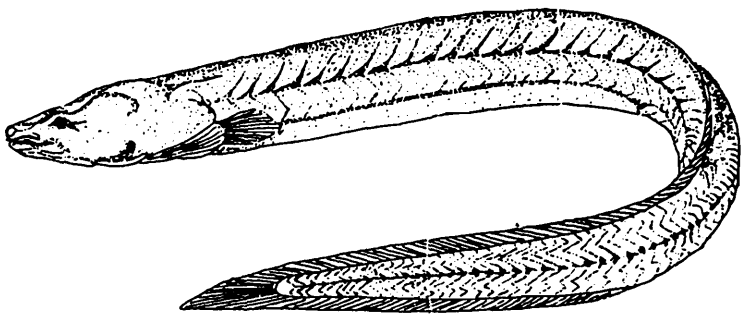


FIG 3

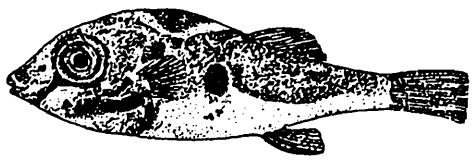
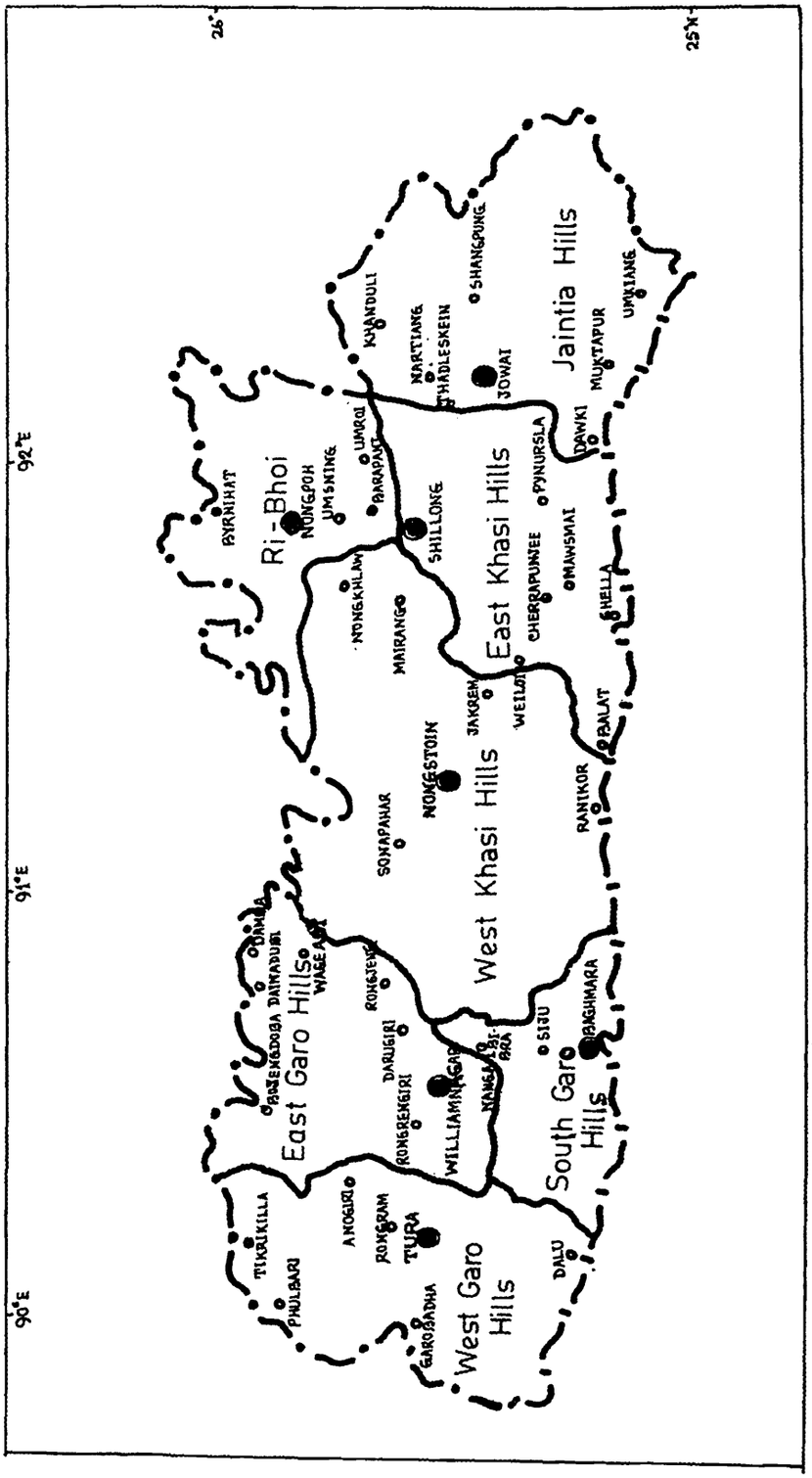


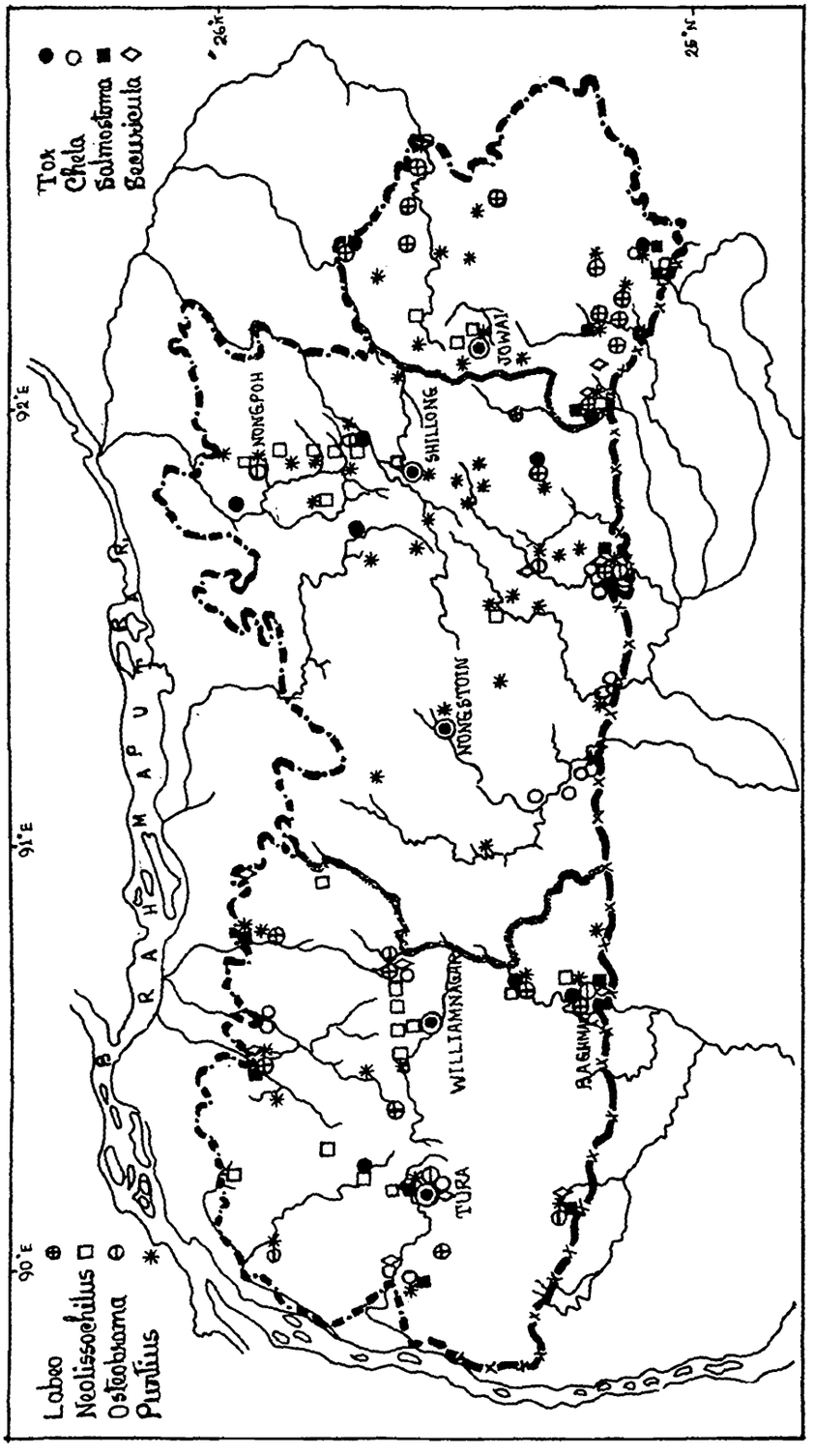
FIG 4

Fig. 1 *Mastacembelus armatus* (Lacepede) 2. *Chaudhuria indica* (Yazdani) 3. *C. khajuria* (Talwar, Yazdani & Kundu) *4. Tetraodon cutcutia* (Hamilton–Buchanan)

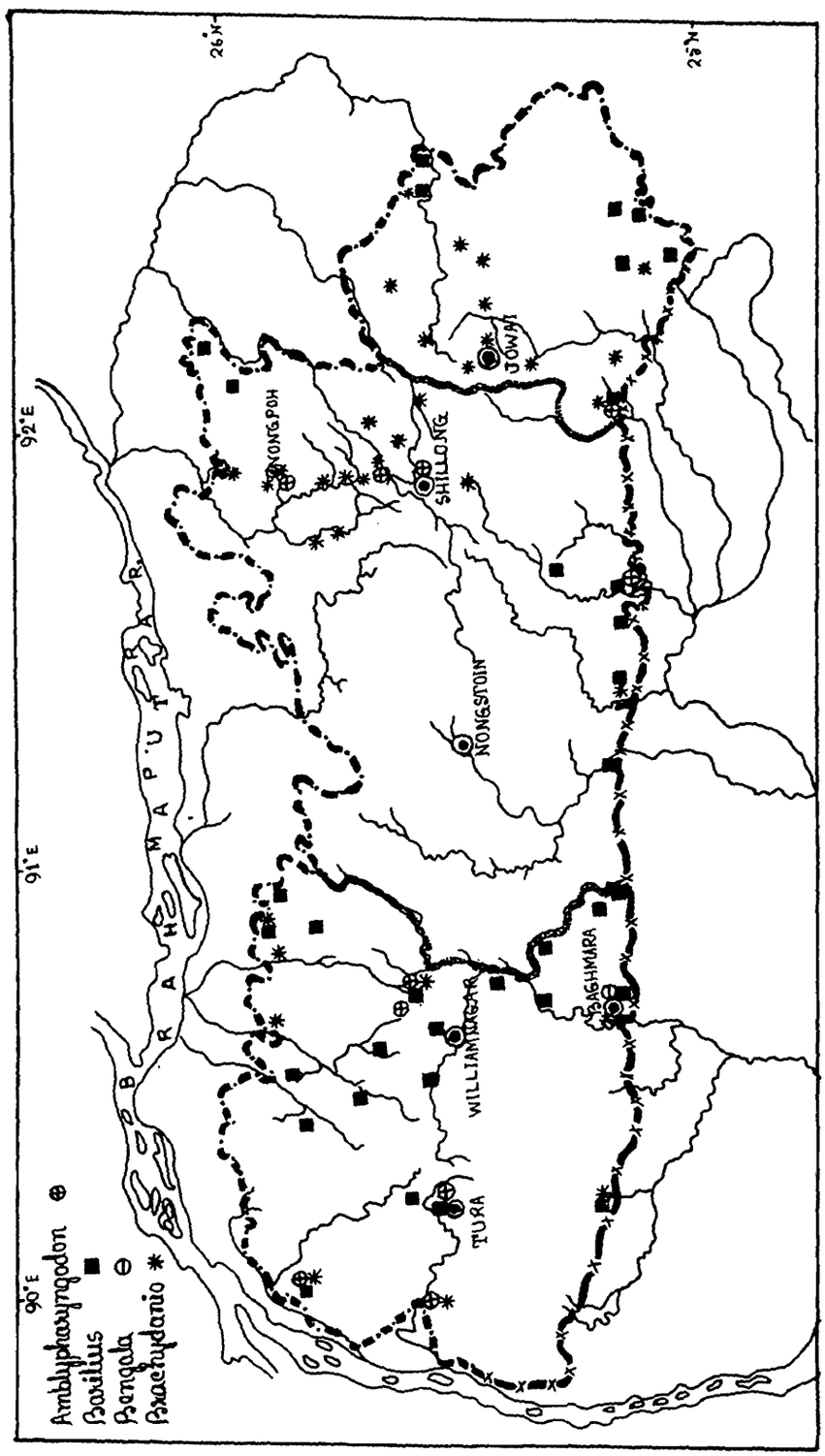


1. MAP OF MEGHALAYA SHOWING DIFFERENT DISTRICTS AND IMPORTANT LOCALITIES

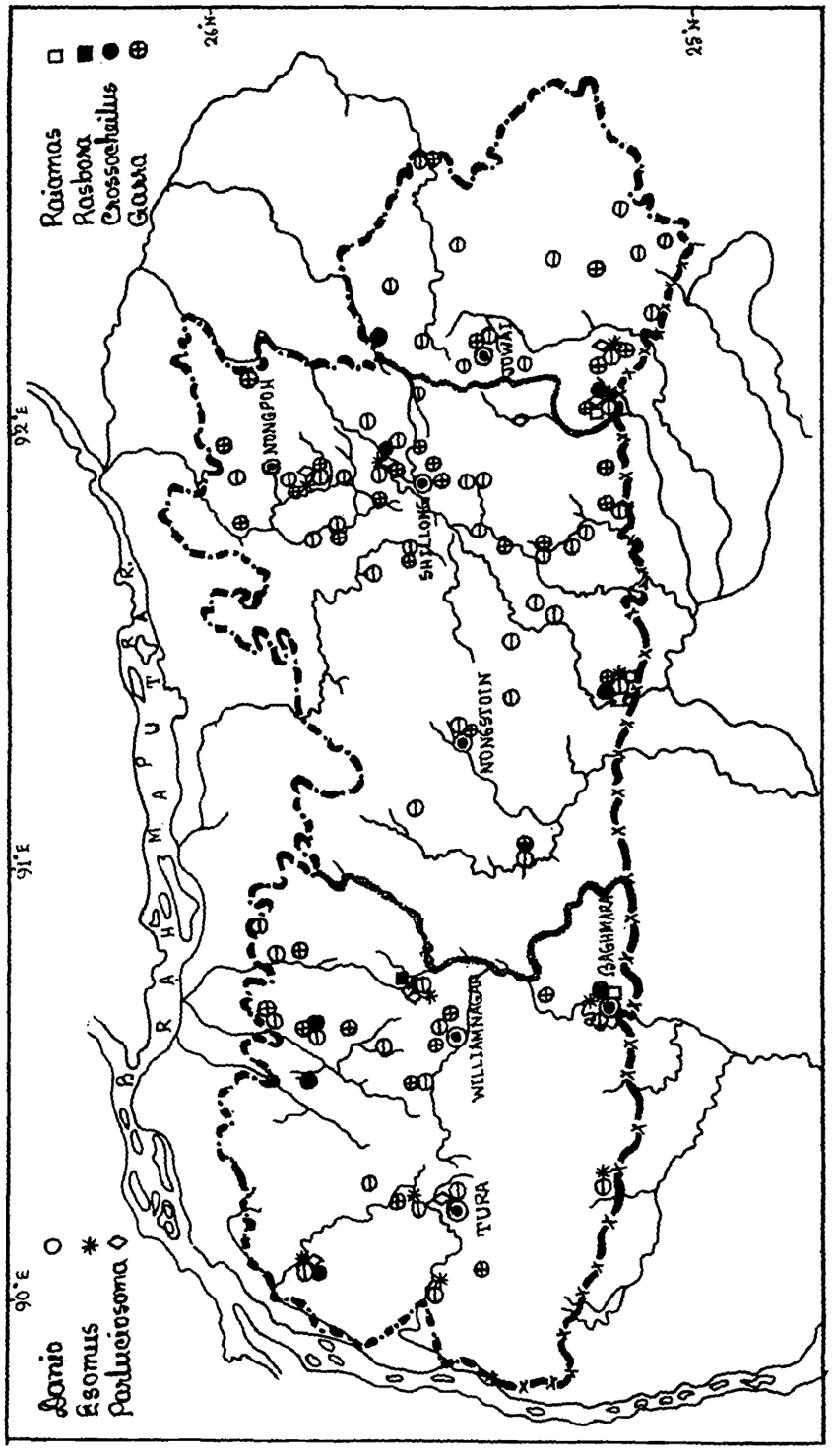
2. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA



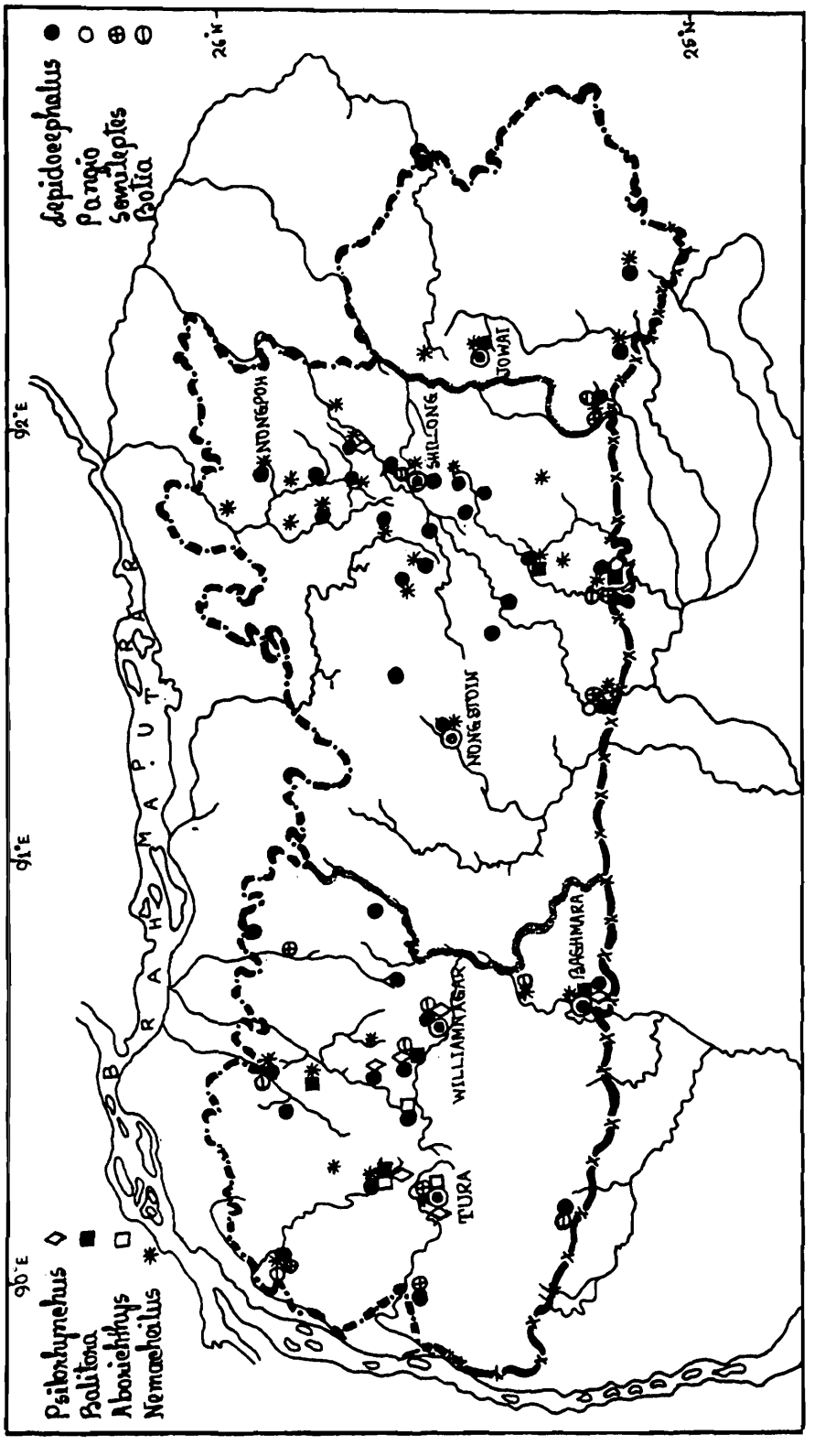
3. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA



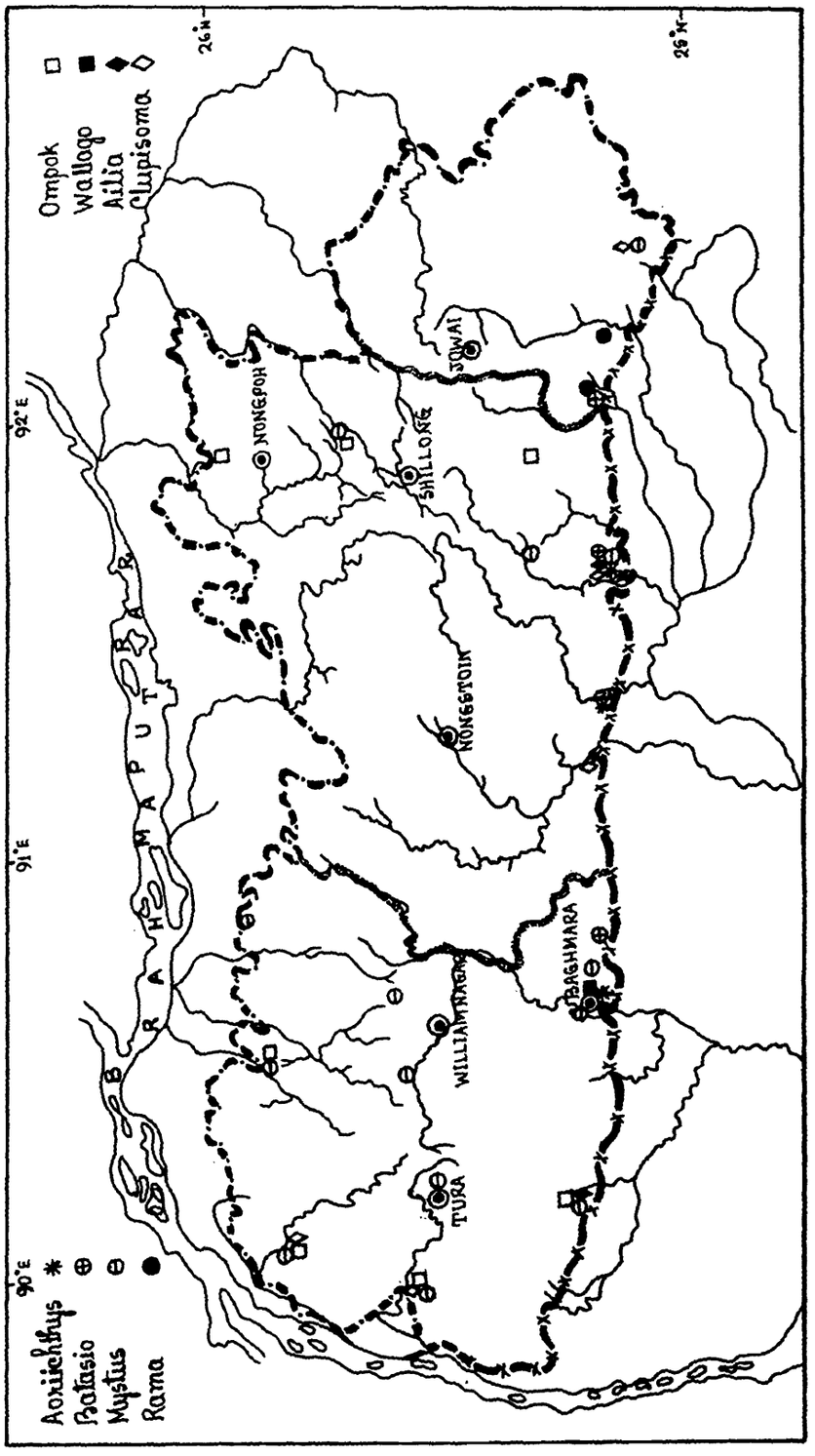
4. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA



5. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA

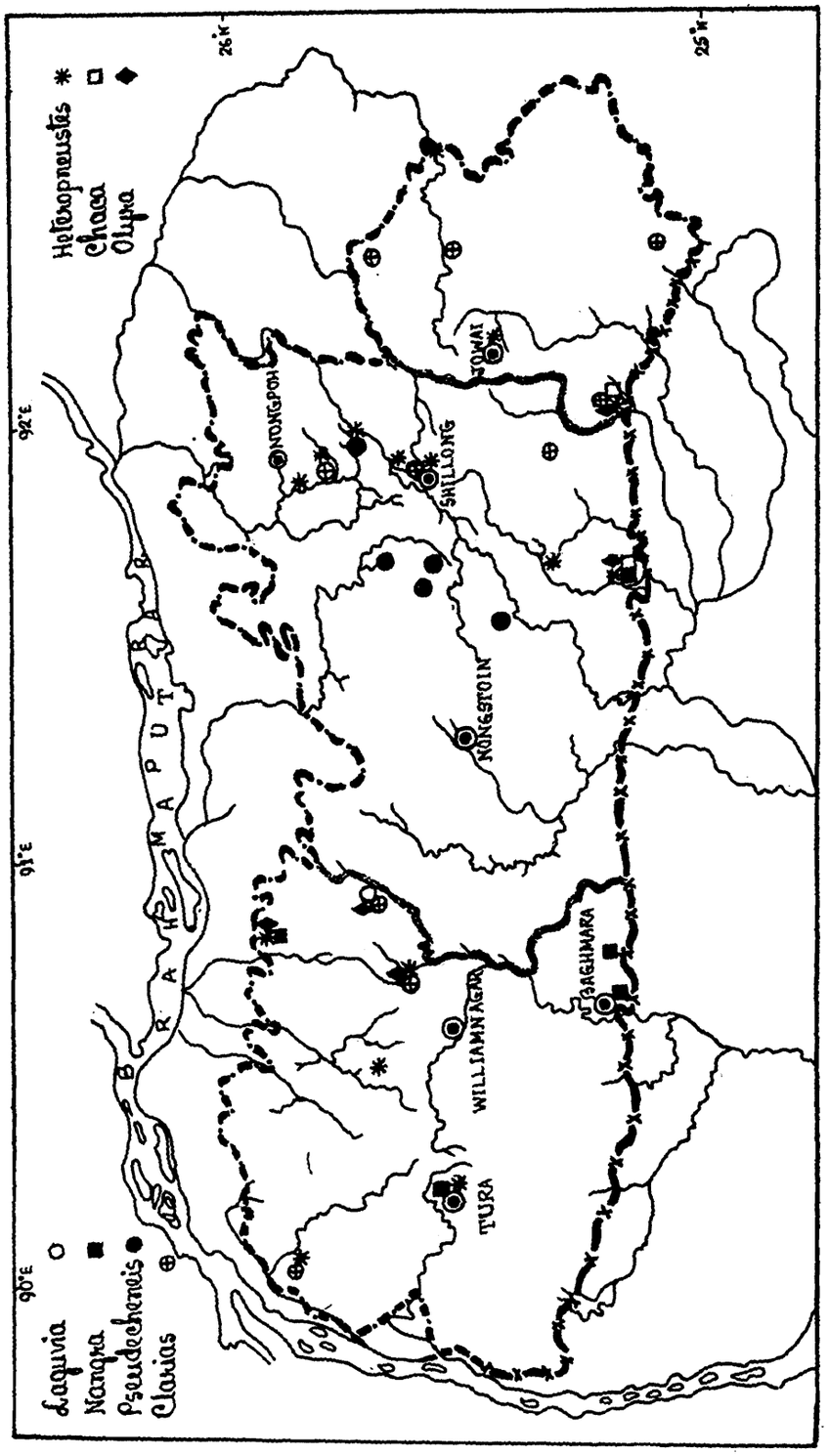


6. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA



7. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA

8. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA



9. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA

10. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA

11. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA

12. MAP OF MEGHALAYA SHOWING DISTRIBUTION OF DIFFERENT GENERA

Predorsal scales 15 or 16.....5.

5. A large black ocellus on caudal fin base; numerous white spots on body and fins.....*C. marulius*

No dark ocellus on caudal fin base lateral line 60-65.....*C. barca*

Channa barca (Hamilton Buchanan)

(Plate XXXVII, Figure 1)

Ophiocephalus barca Hamilton Buchanan, 1822, *Fishes of Ganges* : 67, 367, pl. 35, fig. 20 (Type locality : Brahmaputra river near Goalpara, Assam).

Channa barca : Talwar and Jhingram, 1991, *Inland Fishes* vol 2 1061

Material examined : 2 examples (Khasi hills)

Meristic data :

D.47-52, P.16, V.6, A.34-36, C.19, L.1.60-65, L. tr. 5-6/13, Predorsal scales 15-16, Scales aroundcaudal peduncle 16-18.

Distribution in Meghalaya : Khasi hills (nongstoin, Nongkhlaw).

Elsewhere : India : Assam, West Bengal, Noth-West provinces ; Bangladesh ; Pakistan.

Minimum Maximum length reported so far : 97 mm 915 mm TL.

Remark : Not very common in Meghalaya.

Inhabits rivers.

Channa marulius (Hamilton Buchanan)

(Plate XXXVII, Figure 2)

Ophiocephalus marulius Hamilton Buchanan, 1822, *Fishes of Ganges* : 65, 367, pl.17, fig. 19 (Type locality : Gangetic povinces).

Channa marulius : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1017.

Material examined : 1 example (Garo hills)

Meristic data :

D.45-55, P.16-18, V.6, A.28-36, C.19, L.1.60-70. L. tr. 4.5-6.5/13-11, Predorsal scales 15-16, scales around caudal peduncle 16-18.

Distribution in Meghalaya : Garo hills (Garobadha)

Elsewhere : India : Throughout India : Bangladesh ; Burma ; Chin ; Pakistan ; Thailand ; Srilanka.

Minimum Maximum length reported so far : 156 mm- 122mm TL.

Remark : Rarely occurring in Meghalaya.

Inhabits large lakes and rivers ; prefers deep, clear stretches of water with sandy or rockey bottom.

Channa Orientalis Bloch and Schneider

(Plate XXXVII, Figure 3)

Channa orientalis Bloch and Schneider, 1801, *Syst. Ichth.*, 496, pl. 90, fig.2 (Type locality : India).

Channa orientalis : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1019.

Local name : "Dohthli" (Khasi).

Material examined : 655 examples (529 from Khasi hills, 61 from Jaintia hills, 65 from Garo hills)

Meristic data :

D. 29-37, P.13-15, V.6, A.17-23, C.10-14, L.l.37-50, L. tr. 3-4.5/6-7, Predorsal scales 12, Scales around caudal peduncle 10.

Distribution in Meghalaya : Khasi hills (Barapani, Byrnihat, Cherrapunjee, Jakrem, Kyrdemkulai, Kyllang, Mawphlang, Mylliem, Mawryngkneng, Mawkynrew, Mawblang, Mairang, Nongstoin, Nongkhlaw, Nongkluyllem, Shillong, sumer, Shillon Peak, Sohiong, Sohryngkham, Syrkon, Upper Shillong, Umroi, Umtham, Umran, Umtyngar, Umsamlem, Weiloi), Jaintia hills (Dawki, Garrampani road, Jowai, Khanduli, Khleriat, Muktapur, Mynsaw, Nartiang, Passi, Shangpung, Thadleskein, Ummulong, Umlyngdoh), Garo hills Shangpung, Thadleskein, Ummulong, Umlyngdoh), Garo hills (Anogiri, Baghmara, Dalu, Dalrigiri, Damra, Garobadha, Rongram, Songsak, Selbalgiri).

Elsewhere : India : Throughout India ; Bangladesh ; Afghanistan ; Burma ; Hainan ; Indo-China ; Iran ; Malaya ; Malaya Archipelago ; Nepal ; Pakistan ; Siam ; Sri Lanka ; Taiwan : Thailand ; Yunnan.

Minimum Maximum length reported so far : 21 mm 332 mm TL.

Remark : Commonly occurring species collected throughout the states from different altitudes. It is to be noted that population occurring in Meghalaya is having less Dorsal, Pectoral, Anal and Caudal finrays and lateral line scales than described by Day (1889). Generally Meghalayan population is having Dorsal finrays 29-33 (var. 32-37), Pectoral fin rays 13 (var. 14-15), Anal fin rays 17-22 (var. 20-23), Caudal fin rays 10 (var. 14) and lateral line scales 37-40 (var 40-50).

Inhabits mountain streams and low land waters, especially paddy fields.

Channa punctatus (Bloch)

(Plate XXXVII Figure 4)

Ophiocephalus punctatus Bloch, 1793, *Naturges ausland. Fische*, (7) : 139 , pl. 358 (Type locality : rivers and lakes of Coromandal Coast).

Channa punctata : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 1020.

Local name : "Dohthli" (Khasi).

Material examined : 40 examples (18 from Khasi hils, 22 from Garo hills).

Meristic data :

D.28-33, P. 15-18, V.6, A. 20-23, C.12, L.1. 37-40, L. tr. 4-5/9, Predorsal scales 12, Scales around caudal peduncle 14-16.

Distribution in Meghalaya : Khasi hills (Barapani, Kyrdemkulai, Sumer, Umran, Umsning), Jaintia hills (Dawki), Garo hills (Baghmara, Bozengdoba, Dalu, Darugiri, Garobadha, Phulbari, Ronsangiri, Rongrengiri, Songsak).

Elsewhere : India : Throughout India ; Afthanistan ; Bangladesh ; Burma ; China ; Malaya ; Nepal; Pakistan ; Polynesia ; Srilanka Tahiti.

Minimum Maximum length reported so far : 80 mm 310 mm TL.

Remark : Commonly occurring species, recorded both from lower and higher altitude.

Inhabits freshwater ponds, tanks, streams and rivers.

Channa stewartii (Payfair)

(Plate XXXVIII, Figure 1)

Ophiocephalus stewartii Playfair, 1867, *Proc. zool. Soc. Lond.*, 14, pl.77, fig. 3 (Type localty : Cacher, Assam).

Channa stewartii : Talwar and Jhingran, *Inland Fishes* vol. 2 : 1021.

Local name : "Dohthli" (Khasi)

Material examined : 476 examples (373 from Khasi hills, 62 from Jaintia hills, 41 from Garo hills).

Meristic data :

D. 34-40, P.13-17, V.6, A.21-27, C.12, L.l. 40-50, L. tr. 4.5-5.5/8, Predorsal scales 13, Scales around caudal peduncle 16.

Distribution in Meghalaya : Khasi hills (Barapani, Cherrapunjee; Jakrem, Kyrdemkulai, Lailad, Mawpat, Mawsmai, Mawblang, Mawphlang, Mairang, Mylliem, Mawkynrew, Mawsynram, Nongpoh, Nongkhlaw, Nongkhyllem, Nongstoin, Pynursla, Rambrai, Shillong, Sumer, Sonapahar, Syrkon, Sohiong, Ummir, Umtyngar, Umsning, Umran, Upper Shillong, weiloi), Jaintia hills (Dawki, Garrampani road, Jowai, Khanduli, Muktapur, Thadleskein, Ummulong), Garo hills (Baghmara, Anogiri, Darugiri, Damalrigi, Dewagiri, Nangalbibra, Rongram, Selbalgiri, Damra, Wageasi).

Elsewhere : India : Eastern Himalayas, Arunachal Pradesh, Bihar, West Bengal ; Nepal.

Minimum Maximum length reported so far : 15 mm - 459 mm TL.

Remark : Commonly occurring species. Meghalayan population is generally having less than described by Day (1889), Talwar and Jhingran (1991). In the present population Dorsal finrays 3434-36 (var. 39-40, Pectoral finrays 13-14(var. 17), Anal fin rays 21-23(var. 27) and lateral line scales 40-47) var. 47-50)

Inhabits both running and stagnent waters.

Channa striatus (Bloach)

(Plate XXXVIII, Figure 2)

Ophiocephalus striatus Bloach, 1793, *Naturges. ausland. Fische.*, (7) : 141, pl. 359 (Type locality : Malabar).

Channa striatus : Talwar and Jhingran, 1991, *Inland Fishes*, vol. 2 : 1022.

Local name : "Doththli" (Khasi)

Material examined : Not colected by the author but reorted from Meghalaya.

Meristic data :

D.37-46, P.15-17, V. 6, A. 23-29, C. 19, L.l. 550-57, L. tr. 4.5-7/7-9, Predorsal scales 18-20, Scales around caudal peduncle 14-16.

Distribution in Meghalaya : Jaintia hills, Garo hills.

Elsewhere : India : Throughout India ; Bangladesh ; Burma ; Honolulu (Introduced); Malaya ; Malaya Archipelago ; Nepal ; Pakistan ; Philippines ; Srilanka ; South China ; Thailand.

Minimum Maximum length reported so far : 300 mm 915 mm TL. *Remark* Not very common in Meghalaya.

Inhabits freshwater ponds, streams and tanks ; prefers stagnent muddy water and grassy tanks.

Key to the Genera of Family Mastacemmelidae

1. Dorsal fin spines 32 or less ; rostrum relatively large ; in some species concave ventral surface lined with toothplates; rim of tubular anterior nostril with 6 finger like projections. Preorbital and Preopercular spines absent..... ***Macrognathus***

   Dorsal fin spines 33 or more; rostrum relatively small, never concave ventrally or with rostrum toothplates; rim of anterior tubular nostril with 2 fingerlike projections and 2 broad based flap. Preopercular spine usually present, preorbital spine invariably present..... ***Mastacembelus***

71. Genus *Macrognathus* Lacepede

Macrognathus Lacepede, 1800, *Hist. nat. Poiss.*, 2 : 283 (Type species : *Ophidium aculeatum* Bloch) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1025.

Key to the species

1. Rostrum with concave ventral surface lined with paired tothplates ..... *M. Aral*

   Rostrum rounded in cross section, without tooth plates. Caudal finrays 11-13, Dorsal fin with 24-26 spines and 30-42 soft rays..... *M. pancalus*

Macrognathus aral (Bloch and Schneider)

(Plate XXXVIII, Figure 3)

Rhynchobdella aral Bloch and Schneider, 1801, *Syst. Ichth.*, 479, pl. 89 (Type locality : Tranquebar).

Macrognathus aral : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1026.

Local name : "Kha Bain" (Khasi)

Material examined : 5 examples (1 from Jaintia hills, 4 from Garo hills).

Meristic data :
D.xvi-xxiii / 44-45, P. 19-24, A. iii. 44-52, C.15.

Distribution in Meghalaya : Jaintia hills (Dawki, Muktapur), Garo hills (Dalu, Garobadha, Phulbaari, Tura).

Elsewhere : India : Throughout India; Bangladesh; Borneo ; Burma ; Indo-China ; China ; Java ; Malaya Peninsula ; Moluccas ; Nepal ; Pakistan ; Siam ; Srilanka ; Sumatra ; Thailand ; Vietnam.

Minimum Maximum length reported so far : 141 mm 383 mm TL.

Remark : Very rarely occurring in Meghalaya.

Inhabits fresh and brackish water both running and stagnent.

Macrognathus pancalus Hamilton Buchanan

(Plate XXXVIII, Figure 4)

Macrognathus pancalus Hamilton Buchanan, 1822, *Fishes of Ganges* : 30, 364, pl. 22 fig. 7. (Type locality : tanks of Gangetic provinces).

Macrognathus pancalus : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1027.

Local name : "Kha tynriew" (Khasi)

Material examined : 12 examples (3 from Khasi hills, 3 from Jaintia hills, 6 from Grao hills)

Meristic data :
D.xxiv xxvi/30-42, P. 17-19, A. iii. 31-46, C. 12.

Distribution in Meghalaya : Khasi hills (Barapani, Balat), Jaintia hills (Dawki, Muktapur), Garo hills (Dalu, Garobadha, Phulbari, tura, Damra).

Elsewhere : India : Throughout India ; Bangladesh ; Pakistan.

Minimum Maximum length reported so far : 58 mm 180 mm TL.

Remark : Not very common in occurrence, recorded mainly from lower altitude.

Inhabits rivers of plains and estuaries.

72. ***Mastacembelus*** Scopoli

Mastacembelus Scopoli, 1777, *Introdution Historiam Naturalem*. 458 (Type species: *Ophidium mastacembelus* Solander) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1029.

Diagnostic characters of Species

Dorsal and anal fin broadly joined to caudal; caudal fin outline merged with that of dorsal and anal fin; caudal fin with 14-17 rays. Gape of mouth extending to below posterior bonstril or beyond..... ..... *M. armatus*

Mastacembelus armatus (Lacepede)

(Plate XXXIX, Figure 1)

Macrognathus armatus Lacepede, 1800, *Hist. Nat. Poiss.* 2 : 286 (Type locality : not mentioned).

Mastaoembelus armatus : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1031.

Local name : "Kha - Bancin" (Khasi)

Material examined : 10 examples (1 from Khasi hills, 9 from Garo hills).

Meristic data :

D.xxxii- XL/64 92, P.21 27, A.iii.64-90, C. 14-17.

Distribution in Meghalaya : Khasi hills (Balat), Jaintia hills, Garo hills (Baghmara, Bozengdoba, Damra, Phulbari, Rongrengiri).

Elsewhere : India : Throughout India ; Bangladesh ; Baluchistan ; Burma ; Cambodia ; South China ; Hainan Island ; Java ; Malaya ; Nepal ; Pakistan ; Srilankd ; Sumatra ; Thailand ; Tonkin.

Minimum Maximum length reported so far : 85 mm 610 mm TL.

Remark : Not very common in Meghalaya ; recorded so far from lower altitude only.

Inhabits fresh and brackish waters in plains and hills.

Diagnostic characters of Genus of Family Chaudhuriidae

Body considerably elongated and naked Snout conical with rostral appendage indistinct or absent. Mouth wide, its gape extending as far as anterior edge of eye. Eyes small and prominent, dorso-lateral in position. Dorsal fin with 34 44 rays ; anal fin with 34-43 rays ; no fin spine..... ***Chaudhuria***

73. Genus *Chaudhuria* Annandale

Chaudhuria Annandale, 1991, *Rec. Indian Mus. 14*: 40 (Type species : *Chaudhuria caudata* Annandale) ; Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1033.

Key to the Species

1. Caudal fin confluent with dorsal and anal fin ; branchiostegal rays 6.....2.
2. Pectoral fin with 19 or 20 rays; caudal fin with 12 rays, head conical..... *C. khajuriai*

   Pectoral fin with 7 9 rays ; caudal fin with 8 or 10 rays, head rather depressed..... *C. indica*

Chaudhuria indica (Yazdani)

(Plate XXXIX, Figure 2)

Pillaia indica Yazdani, 1972, *Bombay nat. Hist. Soc., 69* (1) : 134 (Type locality : Sumer, Khasi hills, Meghalaya).

Chaudhuria indica : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1035.

Local name : "Khabsein" (Khasi)

Material examined : 59 examples (51 from Khasi hills, 8 from Garo hills).

Meristic data :
D.34-36, P. 7-9, a. 34-36, C. 8-10.

Distribution in Meghalaya : Khasi hills (Lailad, Kyrdemkulai, Nongpoh, Nongkhyllem, Patharkhama, Umsning, Sumer), Garo hills (Darugiri).

Elsewhere : India : Restricted so far within Meghalaya only.

Minimum Maximum length reported so far : 33 mm 92 mm TL.

Remark : Not very common in occurrence ; recorded mainly from muddy bottom of streams and rivers of Khasi hills only.

Inhabits muddy bottom or submerged vegetation along the edges of streams and rivers of Khasi hills only.

Inhabits muddy bottom or submerged vegetation along the edges of streams which have overhanging vegetation.

Chaudhuria khajuriai (Talwar, Yazdani and Kundi)

(Plate XXXIX, Figure 3)

Pillaia khajuriai Talwar, Yazdani and Kundu, 1977, *Proc. Indian Acad. Sci.*, *85*(2) : 53, fig. 1(Type locality : Rongrengiri, Garo hills, Meghalaya).

Chaudhuria Khajuriai : Talwar and Jhingran, 1991, *Inland Fishes* vol 2 : 1035.

Local name : ""Khabseine" (Khasi)

Material examined : Not collected by the author but reported from Meghalaya.

Meristic data :

D. 40-44, P. 19-20, A. 37-38, C. 12.

Distribution in Meghalaya : Garo hills

Elsewhere : India : Assam.

Maximum length reported so far : 90 mm TL.

Remark : Rerely occurring in Meghalaya ; so far reported from Garo hills only.

Inhabits muddy bottom of streams and rivers.

Diagnostic characters of Genus of Family Tetraoontidae

Nasal organ an elevated, short, rounded tube with a terminal opening. Dorsal fin with 7 13 rays, anal fin with 8-12 rays, pectoral fin with 14-21 rays..... ***Tetraodon***

74. Genus *Tetraodon* Linnaeus

Tetraodon Linnaeus, 1758, *Systema Naturae*, ed. 10 : 332 (Type species : *Tetraodon lineatus* Linnaeus): Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1060.

Diagnostic characters of Species

Body compressed laterally, dorsal profile rising nearly rectilinear to midst of back, than sloping graduall;y to caudal fin. Interorbital space flat. Dorsal fin with 10-13 rays, anal fin with 10-12 rays,

lower border of eye above level of mouth corner. A simple circular nasal cavity present ; body without spines.....*T. cutcutia*

Tetraodon cutcutia Hamilton-Buchanan

(Plate XXXIX, Figure 4)

Tetrodon cutcutia Hamilton Buchanan, 1822, *Fishes of Ganges* : 8 : 362, pl. 18, fig. 3 (Type locality : Ganges river).

Tetraodon cutcutia : Talwar and Jhingran, 1991, *Inland Fishes* vol. 2 : 1060.

Material examined : 9 examples (1 from Khasi hills, 2 from Jaintia hills, 6 from Garo hills).

Meristic data :
D.10-13, P.18-21, A.10-12, C. 7.

Distribution in Meghalaya : Khasi hills (Shella), Jaintia hills (Dawki, Muktapur), Garo hills (Baghmara, Phulbari, Mahadev, Tura).

Elsewhere : India : Assam, West Bengal, Bihar, Orissa ; Bangladesh.

Minimum Maximum length reported so for : 30 mm 90 mm TL.

Remark : Not very common in Meghalaya ; recorded so far from lower altitude only.

Inhabits fresh and brackish waters.

Dis tribution of different species within Meghalaya

	Khasi Hills	Jaintia Hills	Garo Hills
1. *Notopterus chitala* (Hamilton-Buchanan)	+	+	
2. *Notopterus notopterus* (Pallas)	–	–	+
3. *Gudusia chapra* (Hamilton-Buchanan)	+	–	+
4. *Setipinna phasa* (Hamilton-Buchanan)	–	–	+
5. *Catla catla* (Hamilton-Buchanan)	+	–	+
6. *Chagunius chagunio* (Hamilton-Buchanan)	+	–	+
7. *Cirrhinusmrigal mrigala* (Hamilton-Buchanan)	+	–	+
8. *Cirrhinus reba* (Hamilton-Buchanan)	+	+	+
9. *Cyprinus carpio* var. *communis* (Linnaeus)	+	–	+
Cyprinus carpio var. *specularis* Lacepede	+	–	–
10. *Labeo bata* (Hamilton-Buchanan)	–	+	–
11. *Labeo bata* (Hamilton-Buchanan)	+	–	+

12.	*Labeo calbasu* (Hamilton-Buchanan)	+	+	+
13.	*Labeo dero* (Hamilton-Buchanan)	–	+	–
14.	Labeo gonius (Hamilton-Buchanan)	+	+	+
15.	*Labeo nandina* (Hamilton-Buchanan)	+	–	–
16.	*Labeo pangusia* (Hamilton-Buchanan)	+	–	+
17.	*Labeo rohita* (Hamilton-Buchanan)	+	–	+
18.	*Neolissochius hexagonolepis* (McClelland)	+	+	+
19.	*Neolissocheilus hexastichus* (McClelland)	+	–	+
20.	*Osteobrama cotio cotio* (Hamilton-Buchanan)	+	–	+
21.	*Puntius chola* (Hamilton-Buchanan)	+	+	+
22.	*Puntius clavatus* (McClelland)	+	+	+
23.	*Puntius conchonius* (Hamilton-Buchanan)	+	+	+
24.	*Puntius gelius* (Hamilton-Buchanan)	+	+	–
25.	P*untius phutunio* (Hamilton-Buchanan)	+	–	+
26.	*Puntius sarana sarana* (Hamilton-Buchanan)	+	+	+
27.	*Puntius shalynius* Yazdani and Talukdar	+	+	+
28.	*Puntius sophore* (Hamilton-Buchanan)	+	+	+
29.	*Puntius terio* (Hamilton-Buchanan)	+	+	+
30.	*Puntius ticto* (Hamilton-Buchanan)	+	+	+
31	*Tor chelynoides* (McClelland)	+	–	–
32.	*Tor putitora* (Hamilton-Buchanan)	+	+	+
33.	*Tor Tor* (Hamilton-Buchanan)	+	+	+
34.	*Chela cachius* (Hamilton-Buchanan)	+	–	+
35.	*Chela laubuca* (Hamilton-Buchanan)	+	+	+
36.	*Salmostoma bacaila* (Hamilton-Buchanan)	+	+	+
37.	*Salmostoma phulo* (Hamilton-Buchanan)	–	–	+
38.	*Securicula gora* (Hamilton-Buchanan)	+	+	+
39.	*Amblypharyngodon mola* (Hamilton-Buchanan)	+	+	+
40.	*Barilius barila* (Hamilton-Buchanan)	+	+	+
41.	*Barilius barna* (Hamilton-Buchanan)	+	+	+
42.	*Barlilius bendelisis* (Hamilton-Buchanan)	+	+	+
43.	*Barilius shacra* (Hamilton-Buchanan)	+	–	–

44.	*Barilius tileo* (Hamilton-Buchanan)	–	–	+
45.	*Barlius vagra* (Hamilton-Buchanan)	+	+	+
46.	*Bengala elanga* (Hamilton-Buchanan)	–	–	+
47.	*Brachydanio rerio* (Hamilton-Buchanan)	+	+	+
48.	*Danio aequipinnatus* (McClelland)	+	+	+
49.	*Danio dangila* (Hamilton-Buchanan)	+	+	+
50.	*Danio devario* (Hamilton-Buchanan)	+	+	+
51.	*Esonus danricus* (Hamilton-Buchanan)	+	+	+
52.	*Parluciosoma daniconius* (Hamilton-Buchanan)	+	+	+
53.	*Raimas bola* (Hamilton-Buchanan)	+	+	+
54.	*Rasbora rasbora* (Hamilton-Buchanan)	–	–	+
55.	*Crosocheilus latius latius* (Hamilton-Buchanan)	+	+	+
56.	*Garra annandalei* Hora	+	–	+
57.	*Garra gotyla gotyla* (Gray)	+	+	+
58.	*Garra kempi* Hora	+	–	–
59.	*Garra lamta* (Hamilton-Buchanan)	+	–	+
60.	*Garra lissorhynchus* (McClelland)	+	+	–
61.	*Garra mcClellandi* (Jerdon)	+	–	–
62.	*Garra naganensis* Hora	+	+	+
63.	*Garra nasuta* (McClelland)	+	+	+
64.	*Garra rupecula* (McClelland)	+	–	–
65.	*Psilorhynchus balitora* (Hamilton-Buchanan)	+	–	+
66.	*Psilorhynchus homaloptera* Hora and Mukerji	+	–	+
67.	*Psilorhynchus sucatio* (Hamilton-Buchanan)	–	–	+
68.	*Balitora brucei* Gray	–	–	+
69.	*Aborichthys elongatus* Hora	–	–	+
70.	*Aborichthys garoensis* Hora	–	–	+
71.	*Aborichthys kempi* Chaudhuri	–	–	+
72.	*Nemacheilus beavani* Gunther	–	+	+
73.	*Nemacheilus botia* (Hamilton-Buchanan)	+	+	+
74.	*Nemacheilus corica* (Hamilton-Buchanan)	+	–	+
75.	*Nemacheilus dvdevi* Hora	–	–	+

76.	*Nemacheilus elongatus* (Sen and Nalbant)	+	–	–
77.	*Nemacheilus multifasciatus* Day	+	+	+
78.	*Nemacheilus reticulofasciatus* (Singh and Banarescu)	+	+	+
79.	*Nemacheilus savona* (Hamilton-Buchanan)	+	+	–
80.	*Nemacheilus scaturigina* (McClelland)	–	–	+
81.	*Nemacheilus sijuensis* (Menon)	–	–	+
82.	*Nemacheilus sikmaiensis* Hora	+	+	+
83.	*Lepidocephalus annandalei* (Chaudhuri)	+	–	+
84.	*Lepidocephalus berdmorei* (Blyth)	+	–	+
85.	*Lepidocephalus caudofurcatus* Tilak and Hussain	–	+	–
86.	*Lepidocephalus guntea* (Hamilton-Buchanan)	+	+	+
87.	*Lepidocephalus irrorata* Hora			
88.	*Pangio pangia* (Hamilton-Buchanan)	+	–	–
89.	*Somileptes gongota* (Hamilton-Buchanan)	+	+	+
90.	*Botia dario* (Hamilton-Buchanan)	+	+	+
91.	*Botia histrionica* Blyth	–	–	+
92.	*Botia lohachata* Chaudhuri	+	–	–
93.	*Botia rostrata* Gunther	+	–	+
94.	*Aorichthys seenghala* (Sykes)	+	–	+
95.	*Batasio batasio* (Hamilton-Buchanan)	+	+	+
96.	*Batasio tengana* (Hamilton-Buchanan)	+	–	–
97.	*Mystus bleekeri* (Day)	+	–	+
98.	*Mystus cavasius* (Hamilton-Buchanan)	+	+	+
99.	*Mystus montanus* (Jerdon)	+	–	–
100.	*Mystus vittatus* (Bloch)	+	–	+
101.	*Rama chandramara* (Hamilton-Buchanan)	–	+	–
102.	*Ompok bimaculatus* (Bloch	+		+
103.	*Ompok pabda* (Hamilton-Buchanan)	+	+	+
104.	*Ompok pabo* (Hamilton–Buchanan)	+	–	+
105.	*Wallago attu* (Schneider)	–	–	+
106.	*Ailia coila* (Hamilton-Buchanan)	+	–	+
107.	*Clupisoma garua* (Hamilton-Buchanan)	+	+	+

108.	*Eutropiichthys murius* (Hamilton-Buchanan)	+	–	–
109.	*Eutropiichthys vacha* (Hamilton-Buchanan)	+	–	+
110.	*Pseudeutropius atherinoides* (Bloch)	+	–	+
111.	*Amblyceps mangois* (Hamilton-Buchanan)	+	+	+
112.	*Bagarius bagarius* (Hamilton-Buchanan)	–	–	+
113.	*Conta conta* (Hamilton-Buchanan)	–	–	+
114.	*Gagata cenia* (Hamilton-Buchanan)		+	+
115.	*Glyptothorax cavia* (Hamilton-Buchanan)	+	–	+
116.	*Glyptothorax striatus* (McClelland)	+	–	+
117.	*Glyptothorax telchitta* (Hamilton-Buchanan)	+	–	+
118.	*Hara hara* (Hamilton-Buchanan)	+	–	+
119.	*Laguvia shawi* Hora	–	–	+
120.	*Nangra viridescens* (Hamilton-Buchanan)	+	–	+
121.	*Pseudecheneis sulcatus* (McClelland)	+	–	–
122.	*Clarias batrachus* (Linnaeus)	+	+	+
123.	*Heteropneustes fossilis* (Bloch)	+	+	+
124.	*Chaca chaca* (Hamilton-Buchanan)	+	+	–
125.	*Olyra horai* (Prashad and Mukerji)	+	–	–
126.	*Olyra longicaudata* (McClelland)	+	+	+
127.	*Xenentodon cancila* (Hamilton-Buchanan)	+	+	+
128.	*Aplocheilus panchax* (Hamilton-Buchanan)	+	+	–
129.	*Monopterus* (Amphipnous) cuchia (Hamilton-Buchanan)	+	+	–
130.	*Chanda nama* (Hamilton-Buchanan)	+	+	+
131.	*Pseudambassis baculis* (Hamilton-Buchanan)	–	–	+
132.	*Pseudambassis ranga* (Hamilton-Buchanan)	+	+	+
133.	*Nandus nandus* (Hamilton-Buchanan)	+	+	+
134.	*Badis badis* (Hamilton-Buchanan)	+	+	+
135.	*Rhinomugil corsula* (Hamilton-Buchanan)	–	–	+
136.	*Sicamugil cascasia* (Hamilton-Buchanan)	–	–	+
137.	*Glossogobius giuris* (Hamilton-Buchanan)	+	+	+
138.	*Anabas testudineus* (Bloch)	+	–	+

139.	*Colisa fasciatus* (Schneider)	+	+	+
140.	*Colisa sota* (Hamilton-Buchanan)	+	+	+
141.	*Channa barca* (Hamilton-Buchanan)	+	–	–
142.	*Channa maruliuds* (Hamilton-Buchanan)	–	–	+
143.	*Channa orfientalis* Bloch and Schneider	+	+	+
144.	*Channa punctatus* (Bloch)	+	+	+
145.	*Channa stewartii* (Playfair)	+	+	+
146.	*Channa striatus* (Bloch)		+	+
147.	*Macrognathus aral* (Bloch and Schneider)	–	+	+
148.	*Macrognathus pancalus* (Hamilton-Buchanan)	+	+	+
149.	*Mastacembelus armatus* (Lacepede)	+	+	+
150.	*Chaudhuria indica* (Yazdani)	+	–	+
151.	*Chaudhuria khajuriai* (Talwar, Yazdan, Kundu)	–	–	+
152.	*Tetraodon cutcutis* (Hamilton-Buchanan)	+	+	+

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ECOLOGY AND GENERAL FAUNAL RESOURCES OF SOME WETLANDS IN GARO HILLS

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INTRODUCTION

During recent years particularly after Ramsar Convention on Wetlands of International Importance and as Waterfowl habitat (1971), considerable attention has been paid to the study of ecology and bioresources of wetlands throughout the world, not only because of their socio-economic values in providing food and fodder and sustaining sizable human population settled around these but also due to their role in harbouring and conserving a diverse variety of fauna and flora. The true wetlands, which represent highly dynamic systems, where temporal changes in biotic community structure occur during their transition from aquatic to mesophytic system, include all areas of "Marsh, fen, peatland or water, whether natural or artificial, permanent or temporary with water that is static or flowing, fresh, brackish or salt including marine water, the depth of which at low tides does not exceed six meters (Ramsar Convention). Because of certain lacunae in the definition, slightly modified versions have been given alongwith the attributes of wetlands by several workers. Cowarl *et. al.* (1979) definition, as modified by U.S. Department of Interior, Fish and Wildlife Authority, states that wetlands are transition areas between aquatic and terrestrial system where the water table is usually at or near the surface of land and is covered by shallow waters. The Ministry of Environment and Forest, Govt. of India (Anon, 1990) included in the Directory of Wetlands all waterbodies-lakes, natural or artificial, reservoirs and tanks etc.

Although the importance of wetlands has long been recognised in the country, most of the earlier works were confined to basic limnological studies including physico-chemical nature of water and plankton, either from academic or from fishery viewpoints in few selected lakes, ponds or reservoirs (Ganapati, 1940, 1943 and 1959, Ganapati *et. al,* 1953; Chacko and Krishnamurthy 1954; Srinivasan, 1966, 1970 and 1976; Zafar, 1967 and Haniffa 1978 from South India, Das and Srivastav, 1956a, 1956b and 1959; Chakraborty *et. al,* 1959, Singh, 1960. Sahai and Sinha, 1964, Ray *et. al.* and Verma, 1969 from North India; Michael, 1964; Mitra and Mazumdar, 1972, Jana, 1979, Khan, 1979, 1981, Ramkrishna and Sarkar, 1982 Datta *et. al* 1984. 1986 Verma and Datta Munshi, 1987, Saha *et. al,* 1986 and Das and Verma, 1993 from Eastern India; Yadav *et. al,* 1987 from North-East (except Meghalaya) and Kant and Kachroo, 1977, Khan and Zutshi, 1980 and Yousuf 1991 from Kashmir lake. It is only during last few years that the wetlands have been taken in totality from biodiversity and management viewpoints. However, barring few (De *et. al,* 1989; Ghosh, 1990 and Ghosh and Chattopadhyaya, 1990), other reports are general overview of the wetlands and their importance (Biswas, 1974, Gopal, 1982; Anon 1985; Ghosh, 1987, 1990; Ghosh and Sen, 1987; Balakrishnan Nair, 1989 etc.). Concentrated efforts have not been made to present an overall picture of the physico-

chemical and biological properties including important groups of fauna and flora of freshwater bodies of a particular region as a whole. It is with this viewpoint the present work was undertaken to assess the general physico-chemical and biological properties and fauna of a particular region of the country viz Meghalaya State, under State Fauna programme of Z.S.I. The earlier works on Meghalaya were generally confined to waterbodies, both lotic and lentic, situated in or around Shillong Town (Alfred and Chellappa, 1978, Alfred *et. al.* 1978, Thapa, 1981 and Gupta *et. al* 1992 on some ponds and lakes, Gupta and Michael, 1983, 1992, Meran Ao *et. al,* 1984 and Gupta, 1994 on several streams around Shillong etc.). The other waterbodies of the State, which were the subject of detailed limnological studies are Tasak and Chitmereng lakes in East Garo Hills (Das, 1981). Fish Fauna of the region have been worked by several workers (Hora, 1923, Pillai and Yazdani, 1977 and Pardhasardhi and Alfred, 1984 etc.) The shrimps have been studied by Tiwari (1955). Amphibian fauna were studied by Pillai and Chanda (1981) and Chanda (1993).

The present report is based on a survey of few waterbodies of Meghalaya, particularly of Garo Hills during, 1992 and also on the available literature on Fishes, Amphibians and Birds. Since it is basically a hill state, most of the aquatic resources are confined to the running waters and wetlands are scanty, which includes few lakes, ponds and marshes. Besides, there were a large number of small pools along the course of streams, where water stays for quite sometime during dry seasons. Since these pools exhibited somewhat better conditions than running streams in respect of plankton etc., they have been mainly taken into consideration. In many cases these pools were attached by small channels to main stream but the impact of fast current of the streams was not felt in the pools where the water was almost stagnant.

DESCRIPTION OF THE STUDY AREA AND SAMPLING STATIONS

Meghalaya State lies in the north-eastern region of the country between latitude 25° 47'N and 26° 10'N and latitude 69° 47' E and 92° 47' E with an area of 22,500 sq km. It is essentially a hilly region with high and low hills with altitude varying between 600 and 1950 m. The hills are distinctly divisible into Khasi, Garo and Jaintia hills. The water resources of the state, like any other hill state, mainly comprise of streams, big and small, brooks, streamside pools, few lakes, reservoirs and ponds, and also few shallow marshy wetlands in the plains region bordering other states. Garo Hills, which comprise three districts, viz. East Garo Hills, West Garo Hills and South Garo Hills, covers a small tract in the west of the state with an approximate area of 8,160 sq km.

The climate of the state is typical tropical monsoon type with heavy rainfall (annual mean 7200 mm). The temperature varies greatly between Khasi and Garo Hills. Garo hills are comparatively warmer than Khasi hills where maximum temperature goes upto 35° C as compared to 25° C in the latter during peak summer period.

Studies were conducted and samples collected from the following sampling stations/locations.

SOUTH GARO HILLS

Station-1 : *River Simsang and associated pools near Baghmara town* :- The river at this point was broad, shallow and slow flowing. The depth varied between 2-3.5 ft. A number of pools were formed on both sides of the river. Samples were collected mainly from these pools.

Station-2 : *Small stream and stagnant pool in Balphakram National park, 9 km from the gate* :- This was a small very slow flowing stream with several small pools. Dense growth of macrophytes was observed in the pools and in the marginal areas of the stream.

Station-3 : *Mahadeo river and pools near Mahadeo* :- The river Mahadeo originates, from Balphakram and flows towards Bangla Desh, near Mahadeo village. A big deep pool and several small pools were formed beside the river. The big pool was connected from both ends to the river. With the result water was slowly agitated. No major macrophytes were observed.

Station-4 : *Kanai River and pool near Kanai village* :-Twenty km from Mahadeo towards Baghmara. This was a typical small hill stream with almost separated pool. Water seeped through boulders to meet the main river.

Station-5 : *Deep pool connected with river Simsang near Siju village* :- The river at this point formed a big, almost circular, very deep pool. Several fishermen were operating their nets. The pool was inhabited by a large number of fish species which constituted good fishery.

Station-6 : *Small pond situated inside Siju Wild Life Sanctury* :- This was a small pond situated inside the sanctuary with extremely soft muddy bottom. Water was completely stagnant with depth vaying around 0.75m.

Station-7 : *Stream at Siju Cave* :- The swiftly flowing stream coming from Siju cave meets a small stream near its mouth which in turn meets Simsang river. Sampling was done about 10 meters inside the cave where sufficient light was available to carry out the sampling work.

EAST GARO HILLS

Station-8 : *Ninget Stream and small pools* :- Situated about 3 km from Rongrangiri towards Songsek. Several small pools were formed near the moderately flowing stream.

Station-9 : *Tasck Lake* :- It was an important natural tectonic lake, situated about 7.5 km from Songsek and covered an area of approximately 72 ha. It was surrounded by forest from all sides. The lake had an outlet and an inlet.

Station-10 : *Chitmerang Lake* :- This small lake was situated close to Tasak lake and coverd an area of 7.94 ha. The lake contained plenty of macrophytes including water hyacinth at one side.

Station-11 : *Rongthang river and associated pools* :- This was a small moderately flowing stream with an isolated pool, situated on Nangal Babra road, about 1 km from William Nagar Town.

Station-12 : *Simsang river and associated pools near Rongrongiri* :- The fast flowing stream formed a small but connected pool.

WEST GARO HILLS DISTRICT

Station-13 : *Thebrangiri soil conservation pond* :- This was situated about 7 km from Rongram on Phulbani road. The pond was almost of a triangular shape with depth varying between 0.75 to 2.75 m. Macrophytes were in abundance.

Station-14 : *Rongmachak stream and associated pool* :- This was situated near Rongadat, 40 km from Rongram on Phulbani Road near I.B. It was a very slow flowing stream with several stagnant pools with turbid water.

Station-15 : *Massapani beel* :- This beel was basically formed by river Gungerami. It was a shallow large beel situated 7 km before Phulbani Town. It was a typical marshy beel with muddy bottom. The depth varied between 1.0 1.75 m. The beel was used for fishing and brick making.

Station-16 : *Manda river and pool near Nagra para village* :- It was situated nearly 5 km from Dainadubi town. It was a shallow broad and fast flowing river originating from Arbella hills. Small pools were formed along the river.

Station-*17* : *Manikgunj beel on Damra Mednipathar Road* :- It was situated in the plains and was surrounded by forest and beetle nut plantation. The beels were full of macrophytes.

Station-18 : *Moamari marsh near Bajangdoba* :- It was formed by a shallow depression with depth varying between 0.3 and 1 m. Paddy was cultivated on one side of the marsh.

Station-19 : *Small roadside pond near Assimgiri village* :- It was situated on N.H. 51 between Mandal and Bajangdoba. It was a small marshy pond with shallow stagnant water.

Station-20 : *Anugiri Soil conservation pond* :- It was situated near Anugiri on N.H. 51 between Rongram and Bajangdoba. Several small ponds were located on both sides of the road. These were recently constructed ponds with depth varying between 2 and 3 m. The ponds had steep littoral gradients.

Station-21 : *Dalu Roadside marsh* :- It was situated at Dalu point near International border. A marsh with stagnant water connected with paddy fields.

Station-22 : *Small pond at Silbalgiri village*. It was situated about 7 km from Rongram. It was a small pond surrounded by forests from all sides with depth varying between 0.6 and 1.2 m. It was full of macrophytes and floating leaf litter.

Station-23 : *Damlagiri wetland* : It was situated on Tura Garobadha Road. A large marshy wetland with full of reeds, used both for paddy cultivation and fisheries. The depth varied approximately between 0.4 to 2.0 m.

MATERIALS AND METHODS

Water samples were collected from at least two different sites of each waterbody and analysed for temperature, pH, transparancy, dissolved oxygen, free carbon dioxide, alkalinity, hardness and chlorides in the field itself. Nutrients were analysed in laboratory from the samples preserved with 40 mg/l mercuric chloride. The analysis were done following Standard Methods (APHA 1972).

Macrophytes were collected from the marginal area only qualitatively. Qualitative and quantitative phytoplankton collection was done by filtering 2 lit of water through Whatman filter paper No. 4 and preserved in lugols solution. Zooplankton samples were collected with the help of plankton net made of No. 25 mesh bolting nylon. While qualitative samples for relative density studies were collected by hauling the net thrown randomly from the shore, quantitative samples were collected by filtering 50 litres of water through net. The samples were preserved in 4% formalin. The benthos of soft soil and sand were collected from marginal areas by placing an enamel tray of 30x25x5 cm approx. upside down and then inserting a thin but strong iron plate so that the surface of the tray was fully covered. The closed tray was taken out immediately and contents put in a bowl with water and shaken vigorously and sieved through a sieve of 0.5 mm mesh size. Macrobenthos were hand picked with the help of a fine sable hair brush, blunt head forceps and magnifying glass. Insects, shrimps and other necton were collected by dragging a 25x25 cm frame net of 200 mesh through a 2m long section of the weedbed or by putting a metal/wooden quadrate in case of streams and washing the stone boulders and disturbing the substratum upstream with net held downstream.

Fishes and amphibian samples were collected randomly as and when available. Informations regarding their availability in the region were also collected from local people as well as earlier reports. Similarly lists of common marsh and aquatic birds and amphibians were compiled based on both, the observations made during the present study as well as observations of earlier workers.

RESULTS

1. *PHYSICO-CHEMICAL CHARACTERSTICS OF WATER* :

The physicochemical parameters of water quality analysed at all 23 stations are shown in Table 1.

a) *Depth* :- Most of waterbodies studied were shallow pools or marshes and excepting few lakes/ponds, the mean depth was below 1 meter. The waterbodies above 1 meter deep were Station 3 (Mahadeo river pool, with a mean depth of 2.2m,), Station 5 (Simsng river pool, near Siju, with a mean depth of 3.0 m,), Station 9 (Tasek Lake, 1.55m), Station 10 (Chitmereng lake, 1.75m) and Station 16 (Manikgunj beel, 1.7m)(Table 1).

b) *Temperature* :- The air and water temperature of different stations at the time of sampling are given in Table-1. During this period of the year (March), air temperature at different stations varied between 22.0°C and 28.0°C in South Garo Hill district (Stations 1-11), between 22°C and 28°C, in East Garo Hills (Stations 8-12) and between 24.0°C and 31.0°C, in West Garo Hills (Stations 13-23). The corresponding range of water temperature (surface) was 19.2-23.1°C, 18.5-22.0°C and 20.0-27.2°C respectively. During this period of the time, water temperature was always lower than air temperature. However, the differences in air and water temperature were not very wide and ranged between 2.0 and 5.0°C at different stations. Maximum difference of 5°C was recorded from comparatively deeper waterbodies like Mahadeo river pool (Station 3), Simsang River pool near Siju (Station 5), Chitmereng lake (Station 10) and Manikgunj beel (Station 17), where mean depths were above 1.6 m.

c) *Transparancy* :- Light penetration by Secchi disc was only determined in deeper waterbodies having depth of more than 1.5 m or above, which included Stations 3, 5, 9, 10, 13, 15, 17 and 20. When Sechhi disc transparancy as percent of total depth was calculated, the maximum value (38.6%) was found at Station 3, followed by Station 13 (36.3%) and Station 5 (30.0%). The lowest values were observed at station 15 (20.0%), which was a beel situated in plains.

d) *pH* :- The pH of almost all waterbodies studied, except Station 15 (Massapani) were slightly acidic and varied between 6.0 and 6.8. The pH in Massapani was slightly alkaline (7.5). This particular waterbody was situated in the plains of the State bordering Assam and had muddy bottom. The beel was subjected to increased human interferences for various purposes.

e) *Dissolved Oxygen* :- Dissolved oxygen content of all the waterbodies were quite high excepting Station 7 (Siju cave mouth), where due to insufficient light penetration, the reduction in D.O. values was observed. Higher values were recorded from the pools and ponds where macrophytes were in abundance (Stations 8, 9, 10, 12, 19 and 21) and in fast flowing streams (Station 16).

f) *Free carbon-di-oxide* :- The free carbon-di-oxide contents of most of water bodies were of little significance. The values ranged between 0 to 8.5 mg/1. Higher values were recorded from marshy wetlands of lower altitudes (Stations 15, 18 and 21).

g) *Alkalinity* :- Like free carbon-di-oxide, the alkalinity values of all wetlands were considerably low except at Station 15 (Massapani)-60.0 mg/1 and at Station 21 (Dalu)- 42.0 mg/1 which were marshy wetlands.

h) *Chlorides* :- Chloride contents of wetlands studied were again very low. The values were below 8.0 mg/1 except station 15 (16.2 mg/1) and Station 21 (12.0 mg/1).

2. *MACROPHYTES*

The macrophyte flora of the wetlands studied comprised of a number of species which included both, free floating as well as fixed rooted forms. The free floating forms included the species belonging to genera *Pistia, Lemna, Utricularia, Salvania, Azola* and *Ceratopteris*. Among rooted forms, the important species belonged to the genera *Phragmitis, Typha, Vallisneria, Hydrilla, Najas, Nymphaea, Nymphoides and Nelubium.* Besides these aquatic forms the banks of several wetlands contained *Ipomoea, Jussiaca, Enhydris* and *Marsilla* etc.

3. *PHYTOPLANKTON*

Phytoplankton flora of the wetlands composed of six major groups viz Myxophyceae, Chlorophyceae, Bacilliariophyceae Chrysophyceae,, Dinophyceae and Euglenophyceae. The blue green algae (Myxophyceae) were represented by six genera viz *Oscillatoria, Microcystis, Spirulina, Anabaena, Merismopeda* and *Nostoc*. The green algae (Chlorophyceae) comprised of 12 genera, which were *Pandorina, Eudorina, Cosmarium, Desmidium, Closterium, Straustrum, Spirogyra, Selanastrum, Scenedesmus, Ankistrodesmus, Pediastrum* and *Rhizoslonium.* Diatoms (Bacillariophyceae) were represented by 9 genera, namely *Naviculla, Fragillaria, Synedra, Melosira, Nitzchia, Tabillaria, Surerella, Cymbella* and *Diatoma*. The golden brown algae (Chrysophyceae) were represented by only two genera, *Dinobryon* and *Synura*. Similarly Dinophyceae and Euglenophyceae were represented by two common genera each, the former by *Ceratium* and *Peridinium* and latter by *Euglena* and *Phacus*. (Table 2).

Different waterbodies were found to contain different set of species as their phytoplankton constituents. The highest number of genera were recorded from Station 23 (Damlagiri) followed by Station 3 (Mahadeo river pool) which harboured 19 genera. The lowest number of genera were recorded from Stations 7(8 genera), followed by stations 11 (10 genera) and 16 (11 genera).

The blue green algae were available at all Stations excepting Stations 12, 16 and 25. The green algae and diatoms were important contributors to total phytoplankton assemblage at all stations. Chrysophyceae were recorded from 16 Stations. The phytoflagillates belonging to Euglenophyceae were not available at Stations 2, 5, 13, and 16. At all other stations several species of *Euglena* and *Phacus* were seen in the sample.

While green algae were generally the dominant components of perennial ponds/lakes/marshes, the diatoms dominated the phytoplankton composition of streams and their pools. These two groups together contributed more than 60% of the total phytoplankton of most of the waterbodies studied except Station 6, where blue green algae dominated and at Station 7 where euglenoids were the chief constituents. The Stations where green algae dominated were Stations 4 (Kanai River pool, 38.6%), 9 (Task lake, 38.3%), 10 (Chitmereng lake, 25.4%), 13 (Thebrangiri S.C. pond, 30.2%), 15 (Masapani beel, 40.5%), 17 (Manikgunj beel, 39.4%), 18 (Moamari marsh, 35.0%), 18 (Assimgiri pond, 39.5%), 20 (Anugiri S.C. pond, 29.2%), 21 (Dalu, 34.6%), 22 (Silbalgiri, pond, 34.8%), and 23 (Damlagiri, 41.8%). The diatoms dominated stations were 1 (Simsang R. pool, 53.8%), 2 (Balphakrum N.P. stream pool, 32.6%), 3 (Mahadeo R. pool, 40.2%), 5 (Simsang R. pool at Siju, 45.5%), 8 (Ninget stream, 38.2%), 11 (Rongthang R. pool, 44.2%), 12 (Simsang R. pool at Rongrongiri, 48.5%), 14 (Rongmachak stream pool, 44.0%) and 16 (Manda R. pool, 64.8%). Euglenoids were stablised in almost all waterbodies and excepting Station 7, which represented a specialized condition, their occurrence varied between 10.0 and 20.3 irrespective of whether the waterbody was river pool or lake or beel. Golden brown algae (Chrysophyceae) also contributed between 5.2 and 24.3% at Stations where they were available. Their highest contribution was at Station 20 (Anugiri, 25.2%). The contribution of Dinophyceae varied between 5.0 and 10.5%, (Table 3).

The genera which contributed significantly to total phytoplankton density at most of the Stations, were *Cosmarium, Closterium, Straustrum, Spirogyra, Eudorina, Pandorina, Scenedesmus* and *Pediastrum* among green algae and *Synedra, Melosira, Nitzchia* and *Diatoma*, among diatoms, *Dinobryon* among Chrysophycae and *Peridinium*, among Dinophyceae.

The numerical density of total phytoplankton varied considerably from one waterbody to another and generally ranged between 450/1 and 3930/1 except Station 7 where density was low (45/1) because of atypical condition. Higher densities were noticed in perennial part and beels like station 10 (Chitmereng lake, 3930/1), Station 15 (Massapani beel, 3520/1), Station 23 (Damlagiri, 3250/1), Station 9 (Tasek lake, 2872/1) and Station 19 (Assimgiri, 2125/1) etc. The lowest density was recorded from the pools of fast flowing streams or in the streams itself like Station 12 (Simsang R. pool at Ronrangiri, 450/1), Station 16 (Manda R. pool, 650/1) and Station 1 (Simsang R. pool at Baghmara, 972/1) (Table 3).

4. *ZOOPLANKTON*

Zooplankton fauna recorded during present investigations mainly belonged to Rotifera, Cladocera and Copepoda. Besides these three major groups, Protozoan, Ostracods and eggs and larvae of both benthos and fishes (all placed under the category 'Others') also contributed uniformly, though in small quantities and their contribution was not very significant from density as well as biomass viewpoints.

The total number of Zooplankton species recorded from various stations during present investigations was 29 (Table 4). Rotifers were represented by largest number of species (11) belonging to five families namely Brachionidae, Lecanidae, Trichocerídae, Filinidae and Synchaetidae. Family Brachionidae comprised of three species of *Brachionus* (*B. calciflorous* Pallase, *B. fulcatus* Zachariah and *B. quadridentatus* Hermen) and two species of Keratella (*K. tropica* (Apstein) and K. *quadrata* (Muller)). Family Lecanidae subscribed only two species, i.e. *Lecane (L) curvicornis* (Muller) and *Lecane (Monostyla) sp.* Only one genus, *Trichocera* represented the family *Trichocereeridae* Family Asplanchnidae was represented by *Asplanchna brightwelli* Gosse, Family Synchaetidae by *Polyartha vulgaris* Carmlin and Family Filinidae by *Filinia longiseeita* Ehrenberg (Table 4).

Among Cladocera, eleven species belonging to ten genera and five families were recorded from various waterbodies. Except Family Sididae, which comprised of four species, (*Pseudosida bidentata* Herrick, *Sida crystallina* (O. F. Muller), *Diaphanosoma sarsi* Richards and *D. excisum* Sars), all other families were represented by one or two species only. Among Daphnids (Family Daphnidae), *Ceriodaphinia cornuta* Sar and *Daphnia carinata* King were the chief contributors. Family Moinidae was represented by only one species, *Moina micrura* Kurz. Similarly *Bosmina longirostris* (O. F. Muller) was the only representative of the family Bosminidae. Family Chydoridae comprised of three species but except *Chydorus sphaericus* (O. F. Muller), the other two species, *Dunhevedia crassa* King and *Alona rectangula* Sars were not recorded in much abundance.

The copepods were represented by lowest number of species i.e. seven. Among Calanoidea, *Arctodiaptomus keifferi* Reddiah, *Neodiaptomus satanus* Brehm, *Heliodiaptomus vidvus* Gurney, *Phillodiaptomus annae* Apslein and *Diaptomus* sp. constituted the faunal composition. Among Cyclopoida only two species, *Mesocyclops leuckarti* (Claus) and *Mesocyclops hyalinus* Rehberg were recorded (Table 4).

The number of zooplankton species, like phytoplankton, differed from one water body to an other. Barring Station 7, the number of species in all other waterbodies generally varied between six and sixteen. The lowest number of species recorded was from station 16 (Manda R. pool) followed by Station 14 (Rongmachak, 8 species). Highest number of species (16) recorded from Station 23 (Damalgiri) followed by 14 species from Station 17 (Massapani) and Station 21 (Dalu) each. Station 13 harboured 13 species and Stations 1, 3, 9, 10, 15 and 18 contained 12 species each. The perennial lakes and large wetlands contained larger number of species than streams or small pools (Table 4).

The number of Rotifer species in different waterbodies varied between 3 and 7. Similarly, the number of Cladoceran species was also few and varied between 2 and 7. Copepods were represented by still fewer species which varied between 2 and 4.

The numerical density of total zooplankton also differred widely between different waterbodies and ranged between 55/l and 535/l (Table 5). Higher density was noticed in beels and lakes. Maximum numerical density was recorded from Station 23 (535/l). It was followed by station 15 (505/l), Station 18 (460/l), Station 9(345/l) Station 21 (335/l) and Station 10 (310/l). Lowest density was recorded from Station 16 (55/l) followed by Station 12 (75/l) and Station 1 (90/l). No zooplankton were recorded from Siju cave mouth (Station 7).

The relative composition analysis revealed the dominance of rotifers in almost all wetlands except at Stations 1, 4 and 5, where copepods dominated. The contribution of rotifers varied between 37.8 and 66.2% with a mean of 47.0%. The mean contribution of copepods was 24.6% (range 10.5-40.0%). In river pools, copepods contributed significantly. The mean contribution of cladocera was 22.2% within the range of 10.0-31.4%. Their contribution was higher in beels and ponds. The protozoans, ostracods and eggs and larvae etc. together constituted only 6.2% of total zooplankton.

The contribution of rotifers was highest at Station 14 (66.2%) followed by Station 2 (64.0%). Lowest contribution was recorded from Station 5 (33.0%), followed by station 21 (34.5%). Copepods, which were next to Rotifers in the order of abundance, contributed dominantly at Stations 4 (41.5%), 1 and 16 (40.0% each), 5 (36.4%) and 3 and 20 (35.0% each). The lowest share of copepods was at Stations 6 and 17 (10.0% approx each), followed by Station 14 (15.0%) and 19 (18.0%). Cladoceran contributed their maximum at Station. 21 (31.4%) followed by Station 23 (30.5%). Their lowest contribution was at Stations 14 and 16 (10% each). (Table 5).

5. *BENTHOS*

The macrobenthic fauna of the wetlands studied were mainly composed of Annelida (Hirudinea and Oligochaeta), Crustacea (Macrura) immature insects (Ephemeroptera, Plecoptera, Trichoptera, Odonata, Coleoptera and Diptera) and Mollusca (Gastropoda and Bivalvia).

The leeches (Hirudenia) were mainly represented by three species viz. *Glassophonia weberi* (Blanchard), *Hemielepsis marginata* Muller and *Helobdella nociva* Hardering. Among oligochaetes, the terrestrial earthworms were recorded from the wet soil on the banks of several wetlands. These were represented mainly by the species of the genera *Drawidia*, *Pronyx* and *Melzphura*. The aquatic species which were very common at several Stations, belonged to the genus *Tubifex*. The immature insects formed the major component of macrobenthic community, both in pools and ponds/lakes. However, their relative composition varied greatly between the two categories. By far ephemeropterans were most common amongst stone and gravel of pools and streams. Individuals mainly belonged to *Baetis* and *Ephemerella*. Plecoptera were also present in river pools in sufficient numbers but they were totally absent from the marshy beels. Contrary to this Odonates were much more abundant in lakes and beels as compared to stream pools. The Dipterans were recorded from both, pools and lakes/beels but Chironomids were integral constituents of the latter. Simulids were recorded in small numbers from pools. Coleopteran larvae were always represented by four species of shrimps belonging to genus *Machrobrachium* (M. *assamensis* Tiwari, *M. cavernicola* Kemp, *M. hendersoni* deMan and *M. hendersodynum* Tiwari). Among Mollusca, Gastropods were represented by nine species, which were *Bellamya bengalensis* (Lamarck), *Pila globosa* (Swainson), *Thiara granifera* (Lamarck), *Thiara tuberculata* (Muller), *Paladomus blanfordiana* Nevill, *Brotia costula* Rafinseque, *Lymnaea accuminata*

Lamarck and *Gyraulus convexiusculus* (Hutton). Among bivalves, *Lamellidens corrianus* (Lea), *Parreysia sp.* and *Corbicula* sp. were common in most of the waterbodies. Besides the above group, one species of freshwater crab, *Paratelphusa spinigera* Wood-Mason were also recorded from few stations (Table 6).

Since the separation of species in all cases were not done, the benthos were broadly divided into various groups for the purpose of comparision of different stations. These groups may be constituted by individuals of a species or genera or an order as a whole, specially in case of immature insects (Table 6).

The number of groups of benthos, like phytoplankton and zooplankton, varied considerably between the stations. Larger number of groups were recorded from beels/lakes and fewer numbers from pools and streams. Highest number of groups were recorded from Station 15, Massapani beel (18 groups) followed by Station 23, Damlagiri (17 groups) and Stations 9, Tasek and 10, Chitmereng (15 groups each). The lowest number of benthic group was recorded from Station 7 (3 groups), followed by Stations 20 and 16 (4 groups each).

The total number of benthos/m^2 was highest at station 15 (2050/m^2) followed by Stations 18 (1760/m^2), 19 (1520/m^2) and 23 (1336/m^2), all lakes/beels. If Station 7 (Siju cave mouth) is excluded, the lowest density of macrobenthos was recorded from Station 13 (225/m^2), followed by Station 16 (291/m^2) and Station 20 (370/m^2) (Table 7).

Ephemeropterans were by far the largest group in stream pools but their share in the macrobenthos of lakes/beels was very low. While their mean contribution at all stations taken together was nearly 23.0%, they contributed more than 34.7% of stream pool macrobenthos and only 11.4% of lake/ponds benthos. Contrary to this Oligochaetes (aquatic), dipteran larvae and odonata larvae were the chief constitunts of lakes/beels macrobenthos and contributed marginally in stream pools. Their mean contribution at all stations combined was 11.26% for Oligochaetes, 14.24% for Dipteran larvae and 13.0% for Odonata. When lakes/beels were taken separately, their contribution was considerably high (17.2%, 18.93% and 15.0% for Oligochaetes, Dipteran larvae and immature odonates respectively). Coleoptera larvae almost contributed uniformally in all waterbodies, although their share was only 4.0%. Among molluscs, both gastropods and bivalves contributed sigificantly, former by 8.0% and latter by 5.8% of total macrobenthos. Their contribution was higher in lakes/beels as compared to pools. Leeches contributed only 3%. Among Crustacea, the Shrimps were recorded almost equally from lakes/beel and stream pools. Their mean contribution was approximately 14.8% of the total macrobenthos. The crabs, which were represented by single species, were recorded from only 4 stations and their mean contribution to the weterbodies studied was 0.53% (Table 7) only.

6. *NECTON*

Necton fauna of these wetlands comprised of adult floating insects and fishes.

Insects :- Swimming and floating insect community of these waterbodies chiefly comprised of several species of Coleopteran and Hemipteran bugs. Hemiptera was mainly represented by pond skates (Family Gerridae), waterboatman (Family Corixidae), water scorpion (Family Napidae) and water back swimmer (Family Notonectidae). *Gerris sp*, *Corixa sp.*, *Anisops sp.* and *Ranatra sp.* were

most common hemipteran bugs. The Coleopteran fauna were mainly composed of individuals of the families Dystiscidae and Hydrophilidae. Table 8 gives the occurrence of different groups of necton insects at different stations.

Fishes :- A list of the important fishes of the region, observed during present investigations and also reported by earlier workers has been given in Table 9. The list shows 49 species of fishes which are frequently encountered in the region. These belonged to 14 families and 30 genera. Family Clupeidae was represented by only one species, *Gadusia chapra* Fowler. Cyprinids (Family Cyprinidae) were by far the largest group comprising of 26 species. This mainly included several species of *Barilius, Schizothorax, Danio, Labeo, Garra, Puntius* and *Tor* etc. Family Cobitidae was represented by 7 species of loaches belonging to genera *Botia, Lepidocephalichthys* and *Noemacheilus.* Among cat fishes of Family Siluridae, only one species, *Ompok bimaculatus* (Bloch) has been reported. Family Bagaridae was represented by two common species of *Mystus.* Family *Clariidae* included only *Clarias batrachus* (Linnaeus). Similarly family Heteropneustidae was also represented by one species, *Heteropneustus fossilis* (Bloch). The latter two species were mainly recorded from lower regions of the state specially from Garo hill districts.

Family Belonidae has one common representative in the state, *Xenentodon cancilla* (Ham). Family Channidae, comprised by the common species of murrels, *Channa punctatus* (Bloch). Two species, *Chanda nama* (Ham) and *Chanda ranga* (Ham) belonging to Family Centropomidae, were very common. *Nandus nandus* (Ham) of the family Nandidae has also been reported to occur. Among the species of climbing perch (Family Anabantidae), *Anabas testudineus* (Bloch) occurred frequently. Another species *Colisa fasciata* (Bloch. & Schn.) have also been reported. Among gobiids (Family Gobiidae) *Glossogobius giuris* (Ham) was recorded. Lastly, Family Mastacembelidae comprised of two common species, *Mastacembelus armatus* (Lecep) and *M. pancalus* (Ham).

7. *AMPHIBIOUS/WETLAND DEPENDENT FAUNA*

i. ***Amphibia*** :-

Amphibians were mainly represented by two common species of family Ranidae *viz Rana cyanophlyctis* Schn and *Rana limnocharis* Boiesduval. Toads (Family Bufonidae) also occurred frequently very close to wetlands and were mainly represented by *Bufo melanostictus* Schneider. One species each of family Hyliidae *(Hyla annectenes* (Jerden)), Microhyliidae (*Microhyla ornata* (Dum & Bibron) and Rachophoridae (*Rhacophorus maximius* (Gunther) have been commonly reported from the surroundings of the waterbodies. A list of important amphibians occurring commonly in or near wetlands of Meghalaya is shown in Table 10. Quantitatively, the members of family Ranidae were most abundant in and around the waterbodies studied. *Rana cyanophlyctis* was by far the commonest species occurring abundantly in most of the water bodies. Huge shoals of tadpoles of this species were also recorded mainly from stagnant stream pools.

ii. ***Marsh and aquatic birds*** :-

a) *Marsh* :- A list of important marsh and aquatic birds as observed or reported by earlier workers

from the region are shown in Table 11. Marsh birds were mainly represented by families Ardeidae, Rallidae, Charadridae and Ciconiidae. Family Ardeidae comprised of largest number of species which includes Eastern purple heron, *Ardea purpurea manilensis* Meyen, Eastern large egret, *Egretta alba modesta* J.E.Gray, Indian pond heron *Ardeola grayii grayii* (Sykes), Cattle egret, *Bubalus ibiscoromandus* (Boddaert), little egret, *Egretta garzetta garzetta* (Linnaeus), night heron, *Nycticorax nycticorax nycticorax* (Linnaeus), Chestnut bitten *Ixobrychus cinnamomeus* (Gmelin), Black bittern, *Ixobrychus flavicollis* (Latham), and *Ixobrychus sinensis* (Gmelin). Family Ciconiidae was represented by single species, open bill stork, *Anastomus osciatans* (Boddaert). Family Rallidae included five species of waterhen and watercock. These were *Rallus striatus albiventer* Swainson, *Amaurornis fuscus bakeri* Hartel, *Gallicrex cinerea cinerea* (Gemelin), *Gallinula chloropus indica*, Blyth, and *Fulica atra atra* Linnaeus. Family Charadridae was represented by largest number of species. It included, plovers, sand pipers, snipes, woodcocks and stints. Important species were *Vanellus spinosus* (Lessen), *Pluvialis dominica fulva* (Gmelin), *Charadrius dubius curonicus* Gmelin, several species of the genus *Tringa* (*T. totanus totanus* (Linnaeus), *T. stagnatilis* (Bechstein), *T. nebularia* (Gunnerus), *T. ochropus* Linnaeus, *T. glareola* Linnaeus, *T. hypoleucos* Linnaeus, *Gallinago solitaria solitaria* Hodgin, *G. stenura* (Bonaparte), *G. minima* (Brunich), *G. gallinago* (Linnaeus), *Scolopax rusticola* Linnaeus, and *Calidris minuta* Leister.

b) *Aquatic* :- The water birds like swimmers and divers were represented by four families viz. Podicipedidae, Phalacrocoracidae, Anatidae and Laridae. Family Podicipedidae was represented by only one species, the little grebe, *Podiceps ruficollis capensis* Salvadori. Family Phalacrocoracidae, which includes cormorants, shags and snake birds, was represented by little cormorant, *Phalacrocorax niger* (Vieillot) and snake bird, *Ahinga rufa melanogaster* Pennant. Family Anatidae, the teal and duck family comprised of a large number of migratory species. The important ones were *Anser anser* Swinhoe, *Anas acuta* (Linnaeus), *Anus crecca* Linnaeus, *Anas strepera* Linnaeus, *Aythya ferina* (Linnaeus) *Nettapus coromandelianus* (Gmelin) and *Mergus merganser* Linnaeus. Family Laridae, representing gulls and terns, comprised of four common species, viz. brownheaded gull, *Larus* brunoaicephalus Jerdon, Indian river tern, *Sterna aurantia* J.E. Gray, *Sterna hirundo tibatena* Saunders and *Sterna acuticauda* J.E. Gray.

Besides these, a number of species of Kingfishers have also been associated with wetlands. The family Alcedinidae was represented by common kingfishers *Alcedo atthis bengalensis* Gmelin, and lesser pied kingfisher, *Ceryle rudus leucomelanura* (Reichenbach) etc. (Table 11)

DISCUSSION

Inspite of the fact that practically all wetlands discussed here, rather most of the waterbodies of Meghalaya have in one way or other, felt the influence of man's activities; like timber cutting and floating, quarrying, induced agricultural operations (particularly Jhum cultivations on the slopes) and waste discharge near major human settlements; general quality of water is still very good excepting few isolated pockets of streams and lakes. Physico-chemical conditions which were characterized by slightly acidic pH, characteristics of non eutrophic waterbodies of higher altitudes, high dissolved oxygen, very low carbon-di-oxide, lower alkalinity and chloride contents; generally reveal undisturbed

conditions (Hynes, 1970). Except Massapani wetland, in the plains of the state bordering Assam, where increased human activities for brick making and fishing were noticed, the waterbodies studied faced little unjustified human interferences. Earlier reports on Meghalaya waterbodies also revealed in general the good physico-chemical conditions (Alfred *et al*, 1978. Meran Ao *et al.* 1984, Gupta, 1984, Gupta and Michael, 1983 and Gupta *et al.*, 1992).

On the basis of physico-chemical and biological characteristics, the different waterbodies could be grouped into following two major catagories :

1. Streams and pools in higher altitudes and
2. Lakes/ponds and beels etc.

The category -I included stations 1, 2, 3, 4, 7, 8, 11, 12, 14, 19 and 16. Category-II included rest of the stations.

The phytoplankton component reflected clearly the above two patterns. In Category-I waterbodies, diatoms (Bacillariophyceae) dominated the composition and density, followed by green algae (Chlorophyceae). In category-II, green algae were the major component followed by diatoms. The lower region's beels and ponds were also characterised by the increased abundance of blue green algae (Myxophyceae), which are well known indicators of eutrophy. However, Dinophyceae, which have also been reported (Alfred *et. al*, 1978) as indicators of pollution or eutrophication, did not reveal any significant pattern and were available in small to moderate numbers in most of the wetlands. Further euglenoids also did not differentiate the waterbodies on the basis of their status as these occurred almost similarly at all stations.

The zooplankton composition of these waterbodies mainly comprised of rotifers, cladocerans and copepods. Rotifers dominated in almost all waterbodies and contributed nearly 47% of the total zooplankton. The cladocerans and copepods were numerically of almost equal importance, contributing nearly 22.2% and 24.6% respectively. Like phytoplankton, zooplankton also exhibited a demarcating pattern between the two categories of waterbodies. While the contribution of rotifers decreased from Category-I to Category-II, the share of cladocera and copepoda increased. The dominance of rotifers in the zooplankton composition has also been reported by other workers from waterbodies of Meghalaya, particularly Ward's lake (Thapa, 1981) and Tasek and Chitmereng lakes (Das, 1981). However, the numerical density of zooplankton recorded from Tasek and Chitmereng during present investigations were considerably lower than as reported by Das (1981). It is quite possible that overall picture may be different if long term studies are conducted taking into consideration the fluctuations within and between years.

The macrobenthos of these waterbodies were quite rich. However, the differences in numerical density and community structure of benthos in two categories of waterbodies were abundantly clear. While the ephemeropteran, plecopteran and trichopteran fauna were the dominant components of category-I waterbodies, these were almost inconspicous in category-II waterbodies, specially in marshy wetlands of lower region. In category-II waterbodies oligochaetes, chironomids and dipteran larvae formed the bulk of macrobenthic fauna. Similar results have been obtained by other workers of Meghalaya waterbodies. Meran Ao *et. al.*, (1984) and Gupta (1994) found ephemeroptern, plecopteran

and simulid fauna contributing more than 80% of benthic fauna of few streams in and around Shillong town. In Tasek and Chitmereng lakes, Das (1981) reported the dominance of chironomids followed by chaoborids and few oligochaetes. As per the availability of benthic macroinvertebrates in his study, the lakes fall under category-II of the present and exhibit a characteristic of eutrophy. However, the results obtained during present study in the two lakes are somewhat different from the findings of Das (1981) as composition of benthos was considerably different. Not only different relative composition but numerical density was also found to be considerably lower as compared to his observations. It is quite possible that the lakes have undergone some changes during past 15 years which require further detailed study.

Among vertebrates, Pillai and Yazdani (1977) have reported 59 important species of fishes from Garo hills, most of which also occur in other regions of the State. Pardhasardhi and Alfred (1984) while comparing the longitudinal distribution of fishes in two important streams of Garo Hills region, Simsang and Damrang, recorded that 39 species occurred in significant numbers. The most abundant species in Damrang were *Danio aequipipennatus* (10% approx), followed by *Lepidocephalichthys guntea* (9.0% approx), and *Garra gotyla* (6.7%). In Simsang, the dominant species were *Barilius bendelisis* (9.7% approx) followed by *Acrossocheilus hexagonolepis* (9.2% approx), *Garra gotyla* (8.0% approx), *Lepidocephalichthys guntea* (6.0% approx) and *Danio aequipipennatus* (5.9% approx). They also observed that the number of fishes increased as the streams flew downwards.

The amphibian and bird fauna of the state are also considerably rich. Chanda (1993) reported nearly 34 species belonging to six families of amphibians from the State, out of which only seven abundant ones are reported here. Two species, *Rana cyanophlyctis* and *Rana limnocharis* occurred in huge numbers and dominated all other amphibian species at almost all stations. Similarly marsh and aquatic birds were both rich and diverse. A total of 67 species of marsh and aquatic birds have been reported by ornithologists, out of which 44 species belonging to eight families reported here are of general occurrence.

Because of the paucity of wetlands in the state, the culture fishery is also not very well developed. The fishery of the region comprised of scattered operations carried out by fishermen in the streams, specially in lower reaches during certain seasons of the year.

SUMMARY

1. All together 23 waterbodies of Garo Hills in Meghalaya state, were surveyed for their physico-chemical and biological properties including phytoplankton, zooplankton, macrobenthos, necton and major vertebrate fauna associated with these wetlands.

2. Being a hilly state, there was a general dirth of defined wetlands in the region. The available weterbodies included a large number of stream pools formed by streams during dry season along their course, few reservoirs, lakes and ponds. There were few marshy beels in the lower plain regions of the state.

   The studies were carried out in some selected waterbodies covering almost all types.

3. With high dissolved oxygen, slightly acidic pH, low carbon-di-oxide, alkalinity and chloride

contents, the physicochemical nature of water depicted a fairly good condition of almost all waterbodies studied.

4. On the basis of physico-chemical conditions, plankton and benthos, these waterbodies were classified into two categories. Category-I included all streams and pools and category-II comprised of lakes/beels/ponds.

5. The phytoplankton flora comprised of Chlorophyceae, Myxophyceae, Bacillariophyceae, Chrysophyceae, Dinophycae and Euglenophyceae. While diatoms (Bacillariophyceae) dominated in category-I waterbodies followed by green algae (Chlorophyceae), in Category-II waterbodies, it was reverse, where green algae dominated over diatoms. Blue green algae (Myxophyceae) and phytoflagellates (Euglenophyceae) occurred constantly in almost all waterbodies. The Chrysophyceae and Dinophyceae too, occurred in most of the waterbodies but their variations were not much significant except in Tasek and Chitmereng lakes.

6. The zooplankton fauna were mainly represented by Rotifers, cladoceran and copepods. Rotifers dominated numerically in almost all waterbodies barring few, and constituted at an average 47.3% of the total zooplankton density. This was followed by copepods (24.6%) and Cladocerans (22.1%). The protozoans, ostracods and eggs and larvae contributed about 6.0%. The contribution of cladocera in category-II waterbodies were higher than in category-I waterbodies.

7. The macrobenthic fauna were composed of Annelida (Hirudinea, Oligochaeta), Crustacea (Macrura), immature insecta (Ephemeroptera, Plecoptera, Trichoptera, Odonata, Diptera and Coleoptera) and Mollusca (Gastropoda and Bivalvia). Ephemeroptera constituted by far the largest group in stream pools but their share in macrobenthos of lakes/beels were considerably less. Contrary to this, Oligochaetes (aquatic), Odonata and Dipteran larvae were important constituents of lakes/beels.

8. Among necton insects, the swimming and floating hemiptera and coleoptera occurred in most of the waterbodies. The fish fauna of these waters comprised of a large number of species of which 49 species were found to be of general occurrence.

9. The amphibian fauna, which occurred around these waterbodies, belonged mainly to Anura and were represented mainly by two species of *Rana*. Among marsh and aquatic birds, the common species reported from or near the waterbodies of the state comprised of 44 species belonging to 8 families.

10. Because of the paucity of defined wetlands in the state, the culture fishery is not well developed. Capture fishery of the streams are carried out locally on a small scale.

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Table 6. Occurrence of different groups of macrobenthos at different stations.

Absent + Present MACROBENTHOS / STATION	Simsang R. pool near Baghmara	Streams & pools in Balphakram	Mahadeo R. & pool	Kanai R. & pool	Simsang R. pool near Siju	Pond in Siju Sanctuary.	Stream at Siju cave mouth	Ninget Stream & pool	Tasek Lake	Chitmerang lake	Rongthang R. & pool	Simsang R. pool near Rongrangiri	Thebrangiri S. C. pond	Rongmachak Stream & pool	Massapani beel	Manda R. & pool	Manikgunj beel	Moamari Marsh	Assimgiri pond	Anugiri S. C. pond	Dalu Marsh	Pond at Silvelgiri	Damlagiri wetland
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
ANNELIDA : HIRUDINEA																							
Glossophonia Weberi (Blanchard)	+	+	+			+			+						+		+	+	+				+
Helobdella nociva Harding			+		+			-							+		+	+					+
Hemiclepsis marginata Muller									+	+							+	+					
ANNELIDA : OLIGOCHAETA																							
(earth worms)																							
Drawidia sp			+	+		+		+					+		+		+	+	+			+	
Pronyx sp.			+	+							+					+	+		+			+	
Melzphura sp.				+								+			+				+	+			
(aquatic)		+					+			+					+			+	+		+		+
Tubifex sp																							

Contd. on next page.

Absent + Present MACROBENTHOS STATION	Simsang R. pool near Baghmara	Streams & pools in Balphakram	Mahadeo R. & pool	Kanai R. & pool	Simsang R. pool near Siju	Pond in Siju Sanctuary.	Stream at Siju cave mouth	Ninget Stream & pool	Tasek Lake	Chitmerang lake	Rongthang R. & pool	Simsang R. pool near Rongrangiri	Thebrangiri S. C. pond	Rongmachak Stream & pool	Massapani beel	Manda R. & pool	Manikgunj beel	Moamari Marsh	Assimgiri pond	Anugiri S. C. pond	Dalu Marsh	Pond at Silvelgiri	Damlagiri wetland
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
ARTHROPODA : CRUSTACEA :																							
MACRURA (shrimps)																							
Macrobrachium assamensis Tiwari	+	+	+	+	+			+	+	+	+		+	+	+			+	+			+	
Macrobrachium cavernicola Kemp											+												
Macrobrachium hendersoni deMan		+							+		+								-				+
Macrobrachium hendersodymum Tewari		+		+	+									+									
(Crabs)				+											+			+		+			
Paratelphusa spinigera Wood Mason																							
ARTHROPODA : INSECTA																							
Ephemeroptera-immature	+	+	+	+	+		+	+	+	+	+	+	+	+		+				+		+	+
Plecoptera/Trichoptera-immature	+	+	+	+	+		+	+			+	+		+		+							
Odonata (immature)						+		+	+	+	+		+	+	+			+	+		+	+	+
Chironomidae			+			+			+	+	+				+		+	+	+	+	+		+
Tanypodidae		+				+		+	+	+			+		+						+		+
Simuliidae	+			+							+						+		+			+	+
Others						+			+	+					+		+		+		+		+
MOLLUSCA-GASTROPODA																							
Bellamya bengalensis Lamarck						+		+	+	+	+			+	+		+	+	+		+		+
Pila globosa (Swainson)						+									+		-	+			+		+
Thiara granifera Lamarck			+	+					+	+				+	+				+		+		+
Thiara (M) tuberculata (Muller)				+						+		+					+						+

Absent + Present MACROBENTHOS	STATION	Simsang R. pool near Baghmara	Streams & pools in Balphakram	Mahadeo R. & pool	Kanai R. & pool	Simsang R. pool near Siju	Pond in Siju Sanctuary.	Stream at Siju cave mouth	Ninget Stream & pool	Tasek Lake	Chitmerang lake	Rongthang R. & pool	Simsang R. pool near Rongrangiri	Thebrangiri S. C. pond	Rongmachak Stream & pool	Massapani beel	Manda R. & pool	Manikgunj beel	Moamari Marsh	Assimgiri pond	Anugiri S. C. pond	Dalu Marsh	Pond at Silvelgiri	Damlagiri wetland
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Paladomus blanfordiana Muller		+			+								+		+			+	+			+		
Brotia costula Rafinseque				+		+	+			+	+					+		+	+			+		
Lymnaea accuminata Lamarck										+	+			+									+	+
Gyraulus convexiousculus Lamarck							+								+	+			+	+				+
MOLLUSCA : BEVALVIA																								
Lemellidens corrianus (Lea)				+	+					+	+			+		+	+	+		+		+		+
Parreysia sp.		+	+		+	+						+										+		
Corbicula sp.		+		+						+	+		+		+	+								
NO. OF GROUPS		8	9	12	14	7	10	3	7	15	15	11	6	7	10	18	4	13	14	13	4	12	8	17

Table 7. Total Macrobenthos density and relative composition of different groups.

STATIONS	Simsang R. pool near Baghmara	Streams & pools in Baphakram	Mahadeo R. & pool	Kanai R. & pool	Simsang R. pool near Siju	Pond in Siju Sanctuary.	Stream at Siju cave mouth.	Ninget Stream & pool	Tasek Lake	Chitmerang lake	Rongthang R. & pool	Simsang R. pool near Rongrangiri
	1	2	3	4	5	6	7	8	9	10	11	12
DENSITY (No/m ^{2})	510	855	1199	1120	730	605	45	1080	505	760	620	701
RELATIVE COMPOSITION(%)												
Hirudenia		8.0	5.0	4.2		4.1			5.2			5.3
Oligochaeta		7.0	8.2	7.2		20.2			18.2	10.2		
Ephemeroptera (immature)	46.5	20.2	24.4	32.5		7.0	58.0	46.5	10.3	20.5	43.5	50.5
Plecoptera (immature)	9.2	6.8	10.2	10.1	41.7		42.0	10.0		8.3	16.2	15.2
Odonata (immature)	13.5	15.8	16.8	8.0	12.4	20.4		12.5	12.2	8.3	8.3	
Diptera (immature)	4.2	8.2	8.2	8.0	13.3	30.3		10.2	19.1	24.4	5.5	5.0
Coleoptera (immature)	5.0		3.2	4.0	5.1	8.0		9.4	6.7	5.2	5.2	4.0
Crustacea (Macrobrachium)	10.4	23.5	11.6	9.8	10.2				14.2	10.2	6.5	5.0
Crustacea (crabs)					3.0							
Mollusca (Gastropoda)		10.5	8.2	9.2	6.1	10.0		11.2	8.0	3.1		5.0
Mollusca (Bivalvia)	11.2		4.2	7.0	8.2				6.1	9.8	14.8	10.0

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Table 7. Total Macrobenthos density and relative composition of different groups.

STATIONS	Thebrangiri S. C. pond	Rongmachak Stream & pool	Massapani beel	Manda R. & pool	Manikgunj beel	Moamari Marsh	Assimgiri pond	Anugiri S. C. pond	Dalu Marsh	Pond at Silvelgiri	Damlagiri wetland
	13	14	15	16	17	18	19	20	21	22	23
DENSITY (No/m ^{2})	225	495	2050	291	780	1760	1520	370	1295	545	1336
RELATIVE COMPOSITION(%)											
Hirudenia			5.2		6.0	5.0		5.2	4.0	5.0	4.0
Oligochaeta	9.1	17.6	17.3		20.2	23.0	20.5	27.5	18.2	29.5	10.2
Ephemeroptera (immature)	24.0	21.0	5.5	60.2		5.2		28.0		10.5	4.0
Plecoptera (immature)		9.4	5.0	22.5		4.0		9.5			
Odonata (immature)	29.5	17.6	12.2		9.2	14.5	17.5	22.4	16.5	22.5	9.5
Diptera (immature)	24.4	13.2	21.4	5.5	28.4	15.0	33.3		18.5	17.2	14.2
Coleoptera (immature)	3.5		2.1	6.5	5.3		6.3	7.4	3.3	2.0	5.0
Crustacea (Macrobrachium)		10.2	6.2		8.5	11.2	9.2		15.3		16.5
Crustacea (crabs)			5.2			4.5					5.0
Mollusca (Gastropoda)	9.5	5.2	8.2	5.3	16.2	8.0	15.0		19.0	8.3	18.4
Mollusca (Bivalvia)		5.0	10.7		5.2	9.6	7.2		5.2	5.0	13.2

Table 8. Occurrence of different groups of necton insects at different stations.

STATIONS	Simsang R. pool near Baghmara	Streams & pools in Balphakram	Mahadeo R. & pool	Kanai R. & pool	Simsang R. ppol near Siju	Pond in Siju Sanctuary.	Stream at Siju cave mouth.	Ninget Stream & pool	Tasek Lake	Chitmerang lake	Rongthang R. & pool	Simsang R. pool near Rongrangiri
	1	2	3	4	5	6	7	8	9	10	11	12
NECTION; INSECTA												
Hemiptera												
Gerridae	+		+					+	+	+		
Corixidae	+			+		+					+	
Notonectidae		+	+	+			+			+		
Nepidae	+	+					+	+				
Belostomidae		+	+			+		+		+	+	
Coleoptera												
Dystiscidae	+	+	+	+	+	+			+	+	+	
Hydrophillidae			+			+						
Others						+		+	+	+	+	

Contd. on next page.

Table 8. Occurrence of different groups of necton insects at different stations.

STATIONS	Thebrangiri S. C. pond	Rongmachak Stream & pool	Massapani beel	Manda R. & pool	Manikgunj beel	Moamari Marsh	Assimgiri pond	Anugiri S. C. pond	Dalu Marsh	Pond at Silvelgiri	Damlagiri wetland
	13	14	15	16	17	18	19	20	21	22	23
NECTION; INSECTA											
Hemiptera											
Gerridae	+	-	+		+	-	+	-		+	+
Corixidae		+		+			+		-		+
Notonectidae		+	+	+				-	+	-	-
Nepidae	+	-	+		+		-	+	-	-	+
Belostomidae			+			-	+		+	+	-
Coleoptera											
Dytiscidae	+	+	+	+		+	+	-	+	+	+
Hydrophillidae		-	+			+	+	-	-	-	+
Others	+	+	+		-	+	+	-	+	+	+

Table 1. Physiochemical nature of water at different stations

STATION	Simsang R. pool near Baghmara	Streams & pools in Balfakram	Mahadeo R. & pool	Kanai R. & pool	Simsang R. pool near Siju	Pond in Siju Santuary.	Stream at Siju cave mouth	Ninget Stream & pool	Tasek Lake	Chitmerang lake	Rongthang R. & pool	Simseng R. pool near Rongrangiri
PARAMETERS	1	2	3	4	5	6	7	8	9	10	11	12
Air temperature °C	27.5	25.5	24.0	23.0	23.0	25.5	24.0	22.0	23.0	23.0	24.0	24.5
Water temperature °C	23.0	21.0	19.0	20.0	19.0	23.0	20.0	19.0	19.0	18.0	22.0	20.0
Depth (cm)	85.0	35.0	22.0	85.0	300.0	105.0	75.0	60.0	155.0	175.0	105.0	75.0
Trasparency (cm)			85.0		70.0				35.0	42.0		
pH	6.3	6.0	6.5	6.3	6.2	6.8	6.0	6.7	6.8	6.6	6.6	6.2
Dissolved oxygen (mg/l)	8.2	7.8	7.2	7.9	7.5	6.8	4.0	11.0	18.5	10.0	95.0	11.0
Total Alkalinity (mg/l)	20.0	6.0	12.0	12..0	11.6	24.0	10.5	15.0	24.0	30.5	19.0	14.0
Free CO^2 (mg/l)	2.2	2.0	4.0	3.5	2.8	7.8	6.2	6.0	7.0	6.2	2.0	3.2
Chloride (mg/l)	4.0	2.0	4.0			8.0		2.0	5.0	8.0	3.5	

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Table 1. Physiochemical nature of water at different stations

STATION	Thebrangiri S. C. Pond	Rongmachak Stream pool	Massapani beel	Manda R. & pool	Manikgunj beel	Moamari March	Assimgiri pond	Anugiri S. C. pond	Dalu Marsh	Pond at Silvelgiri	Damlagiri wetland
PARAMETERS	13	14	15	16	17	18	19	20	21	22	23
Air temperature °C	28.0	24.0	27.0	30.0	30.5	27.0	31.0	28.0	28.0	24.0	28.0
Water temperature °C	25.0	22.0	24.5	25.0	25.5	24.5	27.2	24.0	25.0	20.5	26.0
Depth (cm)	165.0	110.0	150.0	70.0	165.0	65.0	95.0	300.0	50.0	120.0	130.0
Trasparency (cm)	60.0		30.0		40.0			85.0			
pH	6.7	6.6	7.5	6.8	6.8	6.5	6.0	6.0	6.8	6.2	6.0
Dissolved oxygen (mg/l)	8.5	9.0	7.5	11.2	9.0	7.2	11.0	8.0	10.0	6.2	8.8
Total Alkalinity (mg/l)	22.5	34.0	60.0	18.0	24.0	24.2	30.0	30.0	42.0	4.0	24.0
Free CO^2 (mg/l)	8.5	3.2	6.7	2.5	4.2	6.2	6.5	2.2	2.7	3.2	4.8
Chloride (mg/l)	3.5	2.0	16.2	1.6	8.0		2.4	2.0	12.0	2.5	1.6

Table 2. Occurrence of various phytoplankton genera at different stations

Absent + Present / STATION	Simsang R. pool near Baghmara	Streams & pools in Balphakram	Mahadeo R. & pool	Kanai R. & pool	Simsang R. pool near Siju	Pond in Siju Sanctuary.	Stream at Siju cave mouth	Ninget Stream & pool	Tasek Lake	Chitmerang lake	Rongthang R. & pool	Simsang R. pool near Rongrangiri
	1	2	3	4	5	6	7	8	9	10	11	12
MYXOPHYCEAE												
1 *Oscillatoria*	+		+	+			+			+	+	
2 *Microcystis*	+					+		+	+			
3 *Spirulina*		+			+	+		+	+			
4 *Anabaena*				+	+				+			
5 *Merismopeda*	+		+			+				+		
6 *Nostoc*		+									+	
CHLOROPHYCEAE												
7 *Pandorina*		+	+	+				+		+	+	+
8 *Eudorina*	+		+		+	+	+		+	+		
9 *Cosmarium*	+	+			+			+			+	+
10 *Desmidium*			+					+	+			
11 *Closterium*	+	+	+	+	+			+		+	+	
12 *Straustrum*				+	+	+		+	+			
13 *Spirogyra*	+	+		+	+				+	+	+	+
14 *Selanastrum*	+			+								+
15 *Scanedesmus*	+	+	+			+	+		+	+		
16 *Ankistrodesm*		+			+				+	+		
17 *Pediastrum*	+-	+	+	+	+			+		+		
18 *Rhizoslonium-*			+	+	+			+				
BACILLARIONYCEAE												
19 *Naviculla*	+	-			+	+			+		+	
20 *Fragillaria*		+						+		+		
21 *Synedra*	+	+	+	+	+	+	+	+	+		+	+
22 *Melosita*				+	+					+	+	
23 *Nitzchia*		+	+		+				+			+
24 *Tabillaria*	+					+						+
25 *Surirella*	+		+					+				+
26 *Cymbella*			+						+	+		
27 *Diatoma*			+				+	+				+
CHRYSOPHYCEAE												
28 *Dinobryan*	+	+		+			+		+	+		
29 *Synura*			+					+	+			+
DINOPHYCEAE												
30 *Ceratium*	+		+		+			+				+
31 *Peridinium*		+	+		+	+	+		+	+		+
EUGLENOPHYCEAE												
32 *Euglana*	+		+	+		+	+		+	+		
33 *Phacus*	+	-	+	-	-	+	-	-	-	+	+	-
No. of GENERA	17	14	19	13	16	12	8	15	17	16	10	12

Table 2. Occurrence of various phytoplankton genera at different stations

	Absent + Present STATION	Thebrangiri S. C. pond	Rongmachak Stream & pool	Massapani beel	Manda R. & pool	Manikgunj beel	Moamari Marsh	Assimgiri pond	Anugiri S. C. pond	Dalu Marsh	Pond at Silvelgiri	Damlagiri wetland
		13	14	15	16	17	18	19	20	21	22	23
	MYXOPHYCEAE											
1	*Oscillatoria*	+	+	+		+	+		+	+	+	
2	*Microcystis*	+	+	+				+		+		+
3	*Spirulina*						+		+			
4	*Anabaena*			+				+			+	+
5	*Merismopeda*			+		+			+		+	
6	*Nostoc*	+		+			+					+
	CHLOROPHYCEAE											
7	*Pandorina*			+	+	+	+	+				+
8	*Eudorina*	+			+			+	+			
9	*Cosmarium*	+		+			+		+		+	+
10	*Desmidium*	+	+			+	+					+
11	*Closterium*	+	+		+	+	+		+	+	+	
12	*Straustrum*			+	+	+				+		+
13	*Spirogyra*			+			+	+		+		+
14	*Selanastrum*	+	+	+				+	+	+		+
15	*Scanedesmus*	+					+		+	+		+
16	*Ankistrodesm*			+					+	+		+
17	*Pediastrum*		+		+	+	+		+	+		+
18	*Rhizoslonium-*		+	+				+				+
	BACILLARIONYCEAE											
19	*Naviculla*			+	+	+	+		+	+	+	+
20	*Fragillaria*		+			+		+				
21	*Synedra*			+	+		+	+	+	+	+	+
22	*Melosita*	+	+		+			+	+			+
23	*Nitzchia*			+		+						+
24	*Tabillaria*	+									+	
25	*Surirella*		+	+	+	+	+					
26	*Cymbella*					+						+
27	*Diatoma*				+		+			+		
	CHRYSOPHYCEAE											
28	*Dinobryan*	+	+		+					+		-
29	*Synura*	+							+		+	
	DINOPHYCEAE											
30	*Ceratium*								+	+	+	+
31	*Peridinium*	+									+	+
	EUGLENOPHYCEAE											
32	*Euglana*			+		+				+	+	
33	*Phacus*		+	+			+	+	+		-	+
	No. of GENERA	14	12	18	11	13	15	11	16	15	12	21

Table 3. Total phytoplankton density and relative composition of different groups.

STATIONS	Simsang R. pool near Baghmara	Streams & pools in Balphakram	Mahadeo R. & pool	Kanai R. & pool	Simsang R. pool near Siju	Pond in Siju Sanctuary.	Stream at Siju cave mouth.	Ninget Stream & pool	Tasek Lake	Chitmerang lake	Rongthang R. & pool	Simsang R. pool near Rongrangiri
	1	2	3	4	5	6	7	8	9	10	11	12
PHYTOPLANKTON DENSITY (No/l)	972	1835	2200	1950	1080	1602	45	1130	2872	3930	1720	450
RELATIVE COMPOSITION(%)												
Myxophyceae	4.5	2.4	4.5	10.4	6.5	30.0	5.2	8.4	8.0	5.2	5.5	
Chlorophyceae	20.2	29.4	29.5	38.6	28.8	24.6	10.5	24.6	30.3	25.4	30.0	20.5
Bacillariophyceae	53.8	37.6	40.2	30.2	43.5	15.4	5.5	39.2	20.2	20.5	44.2	48.5
Chrysophyceae	5.2	18.5	5.3	6.4	11.4		20.2	8.6	18.5	15.0		10.4
Dinophyceae	5.8	12.1	10.0		9.8	10.5	20.4	5.0	12.5	19.5		10.2
Eugenophyceae	10.5		10.5	14.4		19.5	38.2	14.2	10.5	14.4	20.3	20.4

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Table 3. Total phytoplankton density and relative composition of different groups.

STATIONS	Thebrangiri S. C. pond	Rongmachak Stream & pool	Massapani beel	Manda R. & pool	Manikgunj beel	Moamari Marsh	Assimgiri pond	Anugiri S. C. pond	Dalu Marsh	Pond at Silvelgiri	Damlagiri wetland
	13	14	15	16	17	18	19	20	21	22	23
PHYTOPLANKTON DENSITY (No/l)	2140	1840	3520	650	1281	2451	2125	1220	2400	1510	3250
RELATIVE COMPOSITION(%)											
Myxophyceae	18.0	20.4	20.5		25.5	20.0	29.8	10.4	15.2	10.2	18.7
Chlorophyceae	30.2	19.6	40.5	25.7	39.4	35.0	38.5	29.2	34.6	34.8	41.8
Bacillariophyceae	25.2	44.5	25.5	64.8	20.2	25.0	15.9	15.2	20.2	19.6	19.5
Chrysophyceae	10.4	5.5		9.8				24.3	5.5	10.3	
Dinophyceae	8.2							10.5	9.0	10.1	5.5
Euglenophyceae		10.0	13.5		14.8	20.0	15.8	10.4	15.5	15.0	14.5

Table 4. Occurrence of different species of zooplankton at different stations

Absent + Present / STATION	Thebrangiri S..C. pond	Rongmachak Stream & pool	Massapani beel	Manda R. & pool	Manikgunj beel	Moamari Marsh	Assimgiri pond	Anugiri S. C. pond	Dalu Marsh	Pond at Silvelgiri	Damlagiri wetland
ZOOPLANKTON	13	14	15	16	17	18	19	20	21	22	23
ROTIFERA											
1 *Brachionus calciflorus* Pallas	+		+		+	+	+		+		+
2 *Brachionus fulcatus* Zacharias				+				+	+		+
3 *Brachionus quadridentatus* Herman		+	+		+			+		+	
4 *Keratella tropica* (Apstein)			+	+		+	+				
5 *Keratella quadrata* (Muller)	+				+			+	+		+
6 *Lecand (L) curvicornis* (Muller)							+		+		+
7 *Lecane (Monostyla) sp.*	+	+		+		+		+			
8 *Tricocerca sp.*		+			+			+		+	
9 *Asplanchna brightwelli* Gosse	+		+			+	+				+
10 *Polyarthra vulgaris* Carli			+		+			+		+	+
11 *Filinia longiseita* (Ehrenberg)	+	+	+		+	+			+		+
CLADOCERA											
12 *Pseudosida bidentata* Aerrick										+	
13 *Sida crystallina* (Muller)	+	+	+		+	+		+	+		+
14 *Diaphnosoma sarsi* Richards	+		+						+		
15 *Diphnosoma escisum* Sars					+	+		+			+
16 *Ceriodaphnia cornuta* Sars			+			+					
17 *Daphnia carinata* King			+		+		+	+	+	+	
18 *Moina micrura* Kurz	+								+	+	
19 *Bosmina longirostris* O.F. Muller					+		+				+
20 *Chydorus sphaericus* O.F. Muller	+				+	+					+
21 *Danhevedia crassa* (King)								+			
22 *Alona rectangula,* Sars		+					+	+		+	+
COPEPODA											
23 *Arctodiaptomus keifari* Rediah	+		+							+	
24 *Heliodiaptomus Uiduvu.* Gurney			+		+	+	+		+		+
25 *Neodiaptomus satanus* Brehm	+							+	+		
26 *Diaptomus sp.* Apstein				+							+
27 *Phyllodiaptomus annae* Rehberg		-		+			+				+
28 *Mesocyclops hyalinus* (Claus)	+				+				+		+
29 *Mescocyclops leuckarti*		+				+		+	+		+
OTHERS:	+	+		+	+	+	+	+	+	+	+
NO. OF SPECIES	13	8	12	6	14	12	10	14	14	9	18

Table 4. Occurrence of different species of zooplankton at different stations

Absent
+ Present

STATION / ZOOPLANKTON	Simsang R. pool near Baghmara	Streams & pools in Balphakram	Mahadeo R. & pool	Kanai R. & pool	Simsang R. pool near Siju cave mouth	Pond in Siju Sanctuary.	Stream at Siju cave mouth	Ninget Stream & pool	Tasek Lake	Chitmerang lake	Rongthang R. & pool	Simsang R. pool near Rongrangiri
	1	2	3	4	5	6	7	8	9	10	11	12
ROTIFERA												
1 *Brachionus calciflorus* Pallas	+	+	+			+		+	-	+	+	+
2 *Brachionus fulcatus* Zacharias					+							
3 *Brachionus quadridentatus* Herman				+					+			
4 *Keratella tropica* (Apstein)	+				+	+			+	+		+
5 *Keratella quadrata* (Muller)			+	+				+				
6 *Lecand (L) curvicornis* (Muller)			+			+		+				
7 *Lecane (Monostyla) sp.*	+								+	+	+	+
8 *Tricocerca sp.*	+	+	+		+			+	+	+		+
9 *Asplanchna brightwelli* Goose	+		+		+	+					+	-
10 *Polyarthra vulgaris* Carli				+					+			
11 *Filinia longiseita* (Ehrenberg)	+	+	+			+		+				
CLADOCERA												
12 *Pseudosida bidentata* Aerrick	+				+			+			+	-
13 *Sida crystallina* (Muller)						+			+	+		-
14 *Diaphnosoma sarsi* Richards	+		+	+				+		+	+	+
15 *Diphnosoma escisum* Sars		+			+							
16 *Ceriodaphnia cornuta* Sars		+							+			-
17 *Daphnia carinata* King			+			+						-
18 *Moina micrura* Kurz					+				+		+	-
19 *Bosmina longirostris* O.F. Muller	+			+		+				+		+
20 *Chydorus sphaericus* O.F. Muller									+			
21 *Danhevedia crassa* (King)			+									
22 *Alona rectangula*, Sars		+		+						+		
COPEPODA												
23 *Arctodiaptomus keifari* Rediah		+		+	+			+				+
24 *Heliodiaptomus Uiduvu*, Gurney				+	+	+				+	+	
25 *Neodiaptomus satanus* Brehm	+		+						+	+		+
26 *Diaptomus sp.*		+						+	+		-	
27 *Phyllodiaptomus annae* Apstein					+							+
28 *Mesocyclops hyalinus* Rehberg	+					+					+	-
29 *Mescocyclops leuckarti* (Claus)			+							+		
OTHERS:	+	+	+	+	+	+		+	+	+	+	
NO. OF SPECIES	12	9	12	9	11	11		10	12	12	9	9

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Table 5. Total zooplankton density and relative composition of different groups.

STATIONS	Simsang R. pool near Baghmara	Streams & pools in Balphakram	Mahadeo R. & pool	Kanai R. & pool	Simsang R. pool near Siju	Pond in Siju Santuary.	Stream at Siju cave mouth.	Ninget Stream & pool	Tasek Lake	Chitmerang lake	Rongthang R. & pool	Simsang R. pool near Rongrangiri
	1	2	3	4	5	6	7	8	9	10	11	12
ZOOPLANKTON DENSITY (No/l)	90	103	182	105	115	235		115	345	310	110	75
RELATIVE COMPOSITION(%)												
Rotifera	32.5	64.0	37.5	38.0	33.0	60.2		45.5	51.4	63.5	50.0	45.2
Cladocera	20.2	15.4	20.5	16.2	25.4	24.5		24.0	18.4	16.5	18.5	16.4
Copepoda	40.0	25.2	34.5	41.5	36.4	10.3		25.0	25.2	15.5	29.5	34.2
Eggs, Larvae, others	7.3	5.4	7.5	4.3	5.2	5.0		5.5	5.0	4.5	2.0	4.2

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Table 5. Total zooplankton density and relative composition of different groups.

STATIONS	Thebrangiri S. C. pond	Rongmachak Stream & pool	Massapani beel	Manda R. & pool	Manikgunj beel	Moamari Marsh	Assimgiri pond	Anugiri S. C. pond	Dalu Marsh	Pond at Silvelgiri	Damlagiri wetland
	13	14	15	16	17	18	19	20	21	22	23
ZOOPLANKTON DENSITY (No/l)	275	135	505	55	240	460	231	201	335	210	535
RELATIVE COMPOSITION(%)											
Rotifera	48.0	66.2	47.0	38.0	63.5	44.2	48.5	38.0	34.5	40.2	39.0
Cladocera	26.4	10.5	25.5	10.0	19.5	28.6	19.5	20.5	31.4	19.5	30.5
Copepoda	20.2	15.0	21.0	40.0	10.5	23.2	18.5	35.5	24.6	25.3	25.2
Eggs, Larvae, others	5.2	6.3	6.5	12.0	5.5	4.0	10.5	6.0	9.5	15.0	5.3

TABLE 9
SOME IMPORTANT FISHES OF MEGHALAYA

FAMILY : CLUPEIDAE

1. *Gadusia chapra* Fowler

FAMILY : CYPRINIDAE

2. *Oxygaster bacalia* (Ham)
3. *Barilius barila* (Ham)
4. *Barilius barana* (Ham)
5. *Barilius bola* (Ham)
6. *Barilius bendelisis* (Ham)
7. *Schizothorax sp*
8. *Danio aequipinnatus* (McClelland)
9. *Danio dangia* (Ham)
10. *Danio devario* (Ham)
11. *Danio (Brachydanio) rerio* (Ham)
12. *Esomus danricus* (Ham)
13. *Rasbora daniconius* (Ham)
14. *Accrossocheilus hexagonolepis* (McClelland)
15. *Amblypharyngodon mola* (Ham)
16. *Crossocheilus latius latius*
17. *Puntius sarana* (Ham)
18. *Puntius titco* (Ham)
19. *Puntius sophore* (Ham)
20. *Tor tor* (Ham)
21. *Cirrhinus reba* (Ham)
22. *Garra lamta* (Ham)
23. *Garra gotyla* (Gray)
24. *Labio boga* (Ham)
25. *Labeo calbasu* (Ham)
26. *Labeo gonius* (Ham)
27. *Labeo dero* (Ham)

FAMILY : COBITIDAE

28. *Botia dario* (Ham)
29. *Lepidocephalichthys annandalei* Choudhury
30. *Lepidocephalichthys guntea* (Ham)
31. *Lepidocephalichthys menoni* Pillai & Yazdani
32. *Noemacheilus multifasciatus* Day
33. *Noemacheilus scaturigina* McClelland
34. *Noemacheilus sikmaiensis* Hora

FAMILY : SILURIDAE

35. *Ompok bimaculatus* (Bloch)

FAMILY : BAGARIDAE

36. *Mystus cavasius* (Ham)
37. *Mystus vittatus* (Ham)

FAMILY : HETROPNEUSTIDAE

38. *Hetropneustes fossilis* (Bloch)

FAMILY : CLARIDAE

39. *Clarias batrachus* (Linnaeus)

FAMILY : BELONIDAE

40. *Xenentodon cancilla* (Ham)

FAMILY : CHANNIDAE

41. *Channa punctatus* (Bloch)

FAMILY : CENTROPOMIDAE

42. *Chanda nama* (Ham)
43. *Chanda ranga* (Ham)

FAMILY : NANDIDAE

44. *Nandus nandus* (Ham)

FAMILY : ANABANTIDAE

45. *Anabus testudineus* (Bloch)
46. *Colisa fasciata* (Bloch & Schn.)

FAMILY : GOBIIDAE

47. *Glossogobius giuris* (Ham)

FAMILY : MASTACEMBELIDAE

48. *Mastacembelus armatus* (Lacep)
49. *Mastacembelus pancalus* (Ham)

TABLE 10
SOME COMMON ANURAN (AMPHIBIA) FAUNA OF MEGHALAYA

FAMILY : BUFONIDAE

1. *Bufo melanostictus* Schneider

FAMILY : HYLIDAE

2. *Hyla annectens* (Jerdon)

FAMILY : MICROHYLIDAE

3. *Microhyla ornata* (Dum & Bibron)

FAMILY : RANIDAE

4. *Amolops afghanus* (Gunther)
5. *Rana cyanophylyctis* Schneider
6. *Rana limnocharis* Boiesduval.

FAMILY : RHACOPHORIDAE

7. *Rhacophorus maximus* Gunther.

TABLE 11
SOME IMPORTANT MARSH AND AQUATIC BIRDS OF MEGHALAYA

FAMILY : PODICIPEDIDAE

1. *Podiceps ruficollis capensis* Salvodori – Little grebe

FAMILY : PHALACROCORACIDAE

2. *Phalacrocorax niger* Vieillot – Little cormorant
3. *Ahinga rufa melanogaster* Pennant – Snake bird

FAMILY : ARDEIDAE

4. *Ardea purpurea manilensis* Meyen – Eastern purple heron
5. *Ardea alba modesta* J. E. Gray – Eastern large egret
6. *Ardeola grayii grayii* (Sykes) – pond heron
7. *Bubulcus ibis coromandus* (Boddaert) – Cattle egret
8. *Egretta garzetta garzetta* (Linnaeus) – Little egret
9. *Nycticorax nycticorax nycticorax* (Linneaus) – Night heron
10. *Ixobrychus cinnamomeus* (Gmelin) – Chestnut bittern
11. *Ixobrychus sinensis* (Gmelin)
12. *Ixobrychus flavicollis* (Latham) – Black Bittern

FAMILY : CICONIIDAE

13. *Anastomus oscitans* (Boddaert) – Openbill stork

FAMILY : ANATIDAE

14. *Anser anser rubiro* Swinhoe
15. *Anus acuta* Linnaeus Pintail
16. *Anus crecca Linnaeus* – Common teal
17. *Anus strepera strepera* Linnaeus
18. *Aythya ferina* (Linnaeus) – Common pochard
19. *Nettapus coromandelianus coromandelianus* (Gmelin) – Cotton teal
20. *Mergus merganser merganser* Linnaeus

FAMILY : RALLIDAE

21. *Rallus striatus albiventer Swainson* – Banded rail.
22. *Amaurornis fuscteus bakeri* Hertert
23. *Gallicrex cinerea* (Gmelin)
24. *Gallinula chloropus indica* Blyth – Indian moorhen
25. *Fulica atra atra Linnaeus* – Coot

FAMILY : CHARADRIDAE

26. *Vaenllus spinosus duvaucelii* (Lesson)
27. *Pluvialis dominica fulva* (Gmelin) – Easter golden plover
28. *Charadrius dubius curonicus* Gmelin – Little plover
29. *Tringa totanus totanus* (Linnaeus) – Red shank
30. *Tringa nebularia* (Gunnerus) – Greenshank
31. *Tringa stagnatilis* (Bechstein) – Marsh sand piper
32. *Tringa ochropus* Linnaeus – Green sand piper
33. *Tringa glareola Linnaeus* – Wood sand piper
34. *Tringa hypoleucos* Linnaeus – Common sand piper
35. *Gallinago solitaria solitaria* Hodgson
36. *Gullinago stenura* (Bonaparte) – Pintail snipe
37. *Gallinago minima* (Brunnich)
38. *Gallinago gallinago* (Limmaeus) – Fantail snips.
39. *Scolopax rusticola rusticola* Linnaeus – Wood cock
40. *Calidris minuta* Leister

FAMILY : LARIDAE

41. *Larus brunicephalus* Jerdon – Brownheaded gull.
42. *Sterna aurantia* J.E. Gray – India river tern
43. *Sterna hirundo tibetana* Saunders
44. *Sterna acuticauda* J.E. Gray

WETLAND DEPENDENT SPECIES — KING FISHERS

FAMILY : ALCDINIDAE

1. *Ceryle rudis leucomelanura* Reichenbach – Lesser pied kingfisher
2. *Alcedo atthis bengalensis* Gmelin
3. *Ceyx eirthaeus erithacus* (Linnaeus)
4. *Pelargopsis capensis capensis* (Linnaeus) – Storkbilled kingfisher

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ON THE SURVEY OF SELECTED WATERBODIES OF RIBHOI, KHASI AND JAINTIA HILLS

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INTRODUCTION

In the preceeding paper (Khan and Alfred, 1995), descriptions of water quality, flora and fauna of some wetlands of Garo hills region of Meghalaya State have been given. The present communication deals with physicochemical and biological conditions of some selected lentic waterbodies of other regions of the state, viz. Ri Bhoi, Khasi and Jaintia Hills.

A general survey of some twenty waterbodies of these regions were carried out for one annual cycle covering all four major seasons, spring, summer, autumn and winter. In order to have a broad idea, these waterbodies were so selected as to represent different types such as waterbodies of natural occurrence, depressions filled with rainwater, fish ponds and man-made ponds. Further in order to ascertain variations due to changes in altitude, the selection of ponds was also based on altitudinal gradation, which varied from 100m above sea level (Valley of Gauhati) to 1900 m above sea level (Shillong peak)

WATERBODIES SURVEYED

I *VALLEY OF GAUHATI* :-

A. Deghali Tank, Gauhati

B. Ulubari Fish pond, Gauhati

II *RIBHOI* :-

C. Fish pond, Byrnihat

D. Domestic pond Byrnihat

E. Fish pond-I, Kyrdem Kulai.

F. Fish pond-II, Kyrdem Kulai.

III *KHASI HILLS*:-

G. Fish pond-I, Mawpun.

H. Fish pond-II, Mawpun.

I. Domestic pond, Mawprem.

J. Lady Hyderi Park, pond-I, Shillong.

K. Lady Hyderi Park, pond-II, Shillong.

L. Golflink pond, Shillong.

M. Pologround pond, Shillong.

N. Fish Dale pond-I, Shillong.

O. Fish Dale pond-II, Shillong

P. Fish Dale pond-III, Shillong.

Q. Pond-I, Upper Shillong.

R. Pond-II, Upper Shillong.

IV *JAINTIA HILLS.*

S. Fish pond, Ladthalaboh.

T. Thadlaskein lake, Jowai.

Except Dighali Tank measuring 100x50 m with a mean depth of 6.0 m and Thadlaskein lake measuring 70x100 m with a mean depth of 5.0 m, all other ponds were of considerably smaller sizes with areas varying between 5 and 60 sq m, and depths between 0.5 and 1.5 m.

MATERIAL AND METHODS

The general, methodology followed for the analysis of water, phytoplankton and zooplankton was as per the methods described in Khan and Alfred, (1995) and Thapa and Alfred (1995).

RESULTS AND DISCUSSION

1. *Physicochemical nature of water* :

Altogether thirteen parameters were studied and results are expressed in Tables 1 and 2. A perusal of results reveals that as one goes from the hills down to lower altitudes, temperature, both air and water, pH, conductivity, total alkalinity, all increased in their values. Carbon dioxide was seen not to follow the same phenomenon but had a tendency of disappearance in ponds situated at the lower altitudes. Oxygen was definitely in reverse in that the higher altitude ponds possessed greater concentrations. Among the nutrients the values were quite less to be indicative of any relation to altitude except with phosphate where a slight increase was observed at low altitude while silicate and nitrate did not follow any regular pattern. Calcium and Magnesium though did not show any significant relation with altitude did have higher values in managed systems like the fish ponds in contrast to natural water bodies.

From the above it was very clear that the higher altitude ponds had a relationship existing with the Ward's Lake (Thapa and Alfred, 1995) and in particular possessing lower pH values, all of them being acidic. In contrast, the ponds at the lower altitude revealed definite alkaline ranges. It was, therefore, understandable that temperature and pH play a great buffering action in the calcium carbonate system with the probability of precipitating the nutrients helping thereby in higher production at lower altitudes. Most of the values of these physico-chemical parameters for the ponds at lower altitudes are

comparable with the tropical ponds. The ones situated higher in the hills have a sub-tropical nature with akiness more to temperate situations and would probably be attributed to their responses to both the situations and therefore could be placed in an ecotone between these two major divisions. The above criteria was true irrespective of the seasons and though the values did show a rhythmicity of fluctuations during the different seasons it was the magnitude at which they oscillated, that depended on their location at different altitudes.

2. *Phytoplankton and Zooplankton*

In addition to physico-chemical parameters, both phytoplankton and zooplankton were studied. A list of important genera recorded is given in Table 3. The analyses revealed that managed waterbodies contained less varieties of phytoplankton but those present were higher in density. A perusal of the Tables 4,5,6 and 7 shows that there was a preponderence of green algae and diatoms in the hills replaced by blue-green and desmids in the plains. Moreover, the managed systems irrespective of the altitudes at which they were situated revealed the composition of algae similar to tropical situations of the plains. *Scenedesmus* was one genus which was abundant in most of the systems in addition to those mentioned earlier. There was a clear succession of algae in the different seasons which in the higher altitude ponds had desmids in spring which gave way to *Microcystis* in winter while it was blue-greens and distoms in spring at lower altitudes with green algae in winter.

Among the zooplankton a similar relationship as seen in phytoplankton existed. The quality increased with altitude but the quantity decreased. The group Rotifera particularly dominated by *Keratella* genus was seen to occur more at the higher altitude ponds while the crustacean zooplankton of Copepods and Cladocerans revealed abundances in plains. Further, though *Keratella* was present in plains it revealed a winter maxima in contrast to the summer abundances at higher altitudes. This was also true for Copepods and Cladocerans except that it was in the reverse seasons. Like phytoplankton, zooplankton revealed a composition similar to those in the water bodies of lower altitudes and in the managed fish ponds, with lower quality but increased abundance (Tables 8, 9, 10 and 11).

The biota as represented above were also indicative, like the physico-chemical parameters of tropical ponds and sub-tropical ones. Whatever the altitude, it was seen that situations of highly tropicalised nature could be mainpulated as seen in the fish ponds. This may primarily be attributed to the fact that with lower pH and temperatures, systems at higher altitudes possessing an oligotrophic nature could be triggered by manipulation, and perturbation to create an eutrophic situation. The ponds are so situated that the watershed being common for all, but due to their locations are directly related to the impact of human population which increases as one goes down to the plains. It was, therefore, felt that ponds at higher altitudes are comparable with the Ward's Lake which, when induced by allochthonous factors, helps in the growth of biota whose intrinsic growth rates are directly related to the nutrient load. The study of the twenty ponds had paved the way for a greater understanding of the lentic systems in the region. In fact one would tend to believe that all these must have possessed at one time or other a common factor responsible for their successional phenomena as seen today. Such a study is ideal, since, one is able to predict the changes and the consequences of a system which is under very heavy stress and pressure. It would be promising to see specially at the managed systems at higher altitudes if left to nature whether they would come back to their matured oligotrophic nature of oscillations and rhythms with magnitudes around threshold levels and not a rise and crash of the biota indicative of immaturity.

Table-1 : Physico-chemical data of the twenty lentic systems.

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	1	32.0	34.0	32.0	33.0	30.0	30.0	D	30.0	20.0	24.0	24.0	24.0	23.0	23.0	24.0	24.0	23.0	24.0	23.0	24.0
	2	33.0	34.0	30.0	32.0	28.0	28.0	R	28.0	20.0	22.0	23.0	22.0	20.0	21.0	21.0	21.0	20.0	21.0	20.0	22.0
	3	40.0	30.0	62.0	30.0	30.0	30.0	I	50.0	50.0	60.0	51.0	30.0	20.0	31.0	45.0	40.0	45.0	60.0	50.0	55.0
S	4	8.6	8.2	8.4	7.8	6.2	6.4	E	6.5	5.6	5.8	6.8	5.6	6.8	5.8	6.2	5.8	5.8	5.8	5.4	6.2
P	5	150.2	146.2	80.9	0.0	14.6	12.9	D	12.7	62.0	56.8	48.6	14.9	40.9	16.8	18.2	20.5	20.6	10.2	30.6	45.6
R	6	104.0	100.6	48.0	46.4	30.6	20.8		14.2	26.4	24.2	30.0	13.6	30.6	20.5	28.0	21.6	18.4	12.4	29.2	28.0
I	7	0.0	0.0	5.2	3.6	8.2	4.8		3.6	3.0	3.6	2.9	12.4	2.4	4.6	3.2	2.8	2.8	4.0	2.4	2.2
N	8	4.0	6.2	6.0	6.4	6.8	7.6		6.4	6.6	4.8	6.2	6.0	8.0	8.2	6.4	4.8	6.4	8.2	4.6	6.8
G	9	2.6	1.7	2.3	1.8	2.8	2.2	U	1.8	1.2	1.9	1.0	2.0	1.4	2.1	2.0	2.1	0.9	0.9	1.4	2.0
	10	2.9	3.1	1.2	2.2	3.5	1.9	P	0.9	2.7	1.1	1.4	2.4	2.0	1.3	1.5	1.8	2.2	2.5	1.6	2.2
	11	0.2	0.2	0.3	0.8	1.3	1.6		0.6	0.2	0.5	1.2	0.2	0.4	1.5	1.2	0.9	0.2	0.0	0.5	0.9
	12	2.0	1.2	2.4	2.0	1.5	2.6		1.9	0.8	1.6	2.0	0.7	2.0	2.2	1.9	2.4	2.0	1.0	2.1	1.2
	13	0.4	0.7	0.5	0.0	0.7	0.1		0.1	0.1	0.9	0.6	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1

A-Deghali Tank, Gauhati
B-Ulubari Fish Pond, Gauhati
C-Fish Pond, Byrnihat
D-Domestic Pond, Byrnihat
E- Fish Pond I, Kyrdem Kulai
F - Fish Pond II, Kyrdem Kulai
G-Fish Pond I, Mawpun
H-Fish Pond II, Mawpun
I-Domestic Pond, Mawprem
J-Lady Hyderi Park Pond-I Shillong

K-Lady Hyderi Park Pond II, Shillong
L-Golflink Pond, Shillong
M-Pologround Pond, Shillong
N-Fish Dale Pond I, Shillong
O-Fish Dale Pond II, Shillong
P-Fish Dale Pond III, Shillong
Q-Pond I, Upper Shillong
R-Pond II, Upper Shillong
S-Fish Pond, Ladthalaboh

1. Air temperature
2. Water temperature
3. Secchi disc
4. pH
5. Conductivity
6. Total alkalinity
7. Oxygen

8. Carbon dioxide
9. Phoschate
10. Silicate
11. Nitrate
12. Calcium
13. Magnesium

Contd. on next page

Table-1 : Physico-chemical data of the twenty lentic systems.

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	1	33.0	31.5	30.5	35.0	27.0	31.0	25.0	29.0	23.0	22.0	23.0	23.0	24.0	20.5	21.0	22.0	18.0	18.0	20.0	28.0
	2	33.0	30.0	32.5	34.0	29.0	29.0	29.0	29.0	20.0	20.0	20.0	22.0	24.5	19.0	19.0	19.0	18.0	18.0	20.0	20.0
	3	45.0	35.0	70.0	35.0	30.0	24.0	41.0	52.6	50.0	60.0	30.0	30.0	20.0	50.0	30.0	35.0	35.0	60.0	50.0	60.0
S	4	9.0	7.4	8.0	8.2	6.0	6.5	6.2	6.2	5.8	5.8	6.0	4.9	6.1	6.3	6.4	6.2	5.4	5.6	5.8	5.4
U	5	168.0	159.6	60.1	0.0	11.8	11.1	12.8	13.1	40.3	50.2	50.2	10.5	35.7	11.8	16.4	18.2	20.8	8.7	42.5	50.3
M	6	88.0	90.0	44.0	54.4	24.0	12.0	18.0	12.0	20.0	22.4	28.0	10.0	24.0	16.0	30.0	30.0	20.8	13.6	30.2	20.0
M	7	6.0	5.2	4.2	2.4	5.6	6.4	4.4	4.0	4.0	2.6	2.0	24.0	1.2	3.0	2.4	1.6	5.2	2.0	3.6	1.4
E	8	9.0	8.4	8.0	8.2	8.4	10.0	5.6	5.6	6.2	6.4	6.8	5.6	6.0	7.0	7.2	7.2	7.2	8.4	6.4	7.4
R	9	3.4	2.6	1.8	1.6	1.9	1.5	1.1	1.2	1.6	2.8	1.5	2.6	1.9	2.5	2.0	1.9	0.8	0.8	1.3	1.3
	10	3.9	4.5	0.9	2.1	2.4	2.9	1.4	0.9	2.9	1.3	1.5	2.5	0.7	1.5	1.7	1.6	1.9	2.6	0.9	2.0
	11	0.1	0.3	0.2	0.8	1.6	1.7	0.9	0.6	0.2	0.4	0.9	0.2	0.3	1.6	0.9	1.5	0.5	0.1	0.6	1.3
	12	2.6	0.9	2.9	1.9	0.9	1.7	2.1	2.1	0.8	0.9	2.1	0.9	2.1	2.0	1.3	1.9	1.9	1.0	1.9	0.9
	13	0.4	0.6	0.3	0.0	0.6	0.0	0.1	0.2	0.1	0.5	0.6	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.1	0.1

A-Deghali Tank, Gauhati
B-Ulubari Fish Pond, Gauhati
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J-Lady Hyderi Park Pond-I Shillong
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L-Golflink Pond, Shillong
M-Pologround Pond, Shillong
N-Fish Dale Pond I, Shillong
O-Fish Dale Pond II, Shillong
P-Fish Dale Pond III, Shillong
Q-Pond I, Upper Shillong
R-Pond II, Upper Shillong
S-Fish Pond, Ladthalaboh
T-Thadlaskein Lake Jowai

1. Air temperature
2. Water temperature
3. Secchi disc
4. pH
5. Conductivity
6. Total alkalinity
7. Oxygen

8. Carbon dioxide
9. Phoschate
10. Silicate
11. Nitrate
12. Calcium
13. Magnesium

Table-2 : Physico-chemical data of the twenty lentic systems.

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	1	34.0	33.0	28.0	30.0	25.0	27.0	31.0	31.0	20.0	23.0	24.0	24.0	23.0	21.0	22.0	22.0	20.0	21.0	18.0	18.0
	2	30.0	32.0	29.0	30.0	26.0	29.0	27.0	25.0	15.0	19.0	22.0	20.0	21.0	18.0	18.0	18.0	18.0	19.0	17.0	18.0
	3	36.0	30.0	65.0	32.0	29.0	32.0	42.0	50.0	52.0	60.0	45.0	30.0	20.0	50.0	30.0	40.0	30.0	60.0	60.0	50.0
A	4	8.8	6.8	7.4	8.0	6.6	6.0	6.5	6.5	6.0	6.1	5.8	5.1	5.6	5.4	6.0	6.0	5.6	5.8	6.0	6.0
U	5	156.4	162.0	70.1	0.0	12.6	12.5	10.1	11.1	48.6	52.4	46.5	12.5	62.8	14.4	18.6	6.6	24.6	12.5	48.6	60.2
T	6	103.6	98.4	55.0	56.6	24.0	12.0	22.0	10.0	22.6	28.4	26.0	10.8	30.4	22.8	22.0	23.2	22.4	18.4	14.6	24.5
U	7	0.8	6.2	6.2	2.0	5.6	6.0	5.0	4.0	3.8	3.4	3.4	14.2	4.6	3.4	3.0	2.0	2.4	1.6	4.0	1.0
M	8	7.6	8.0	4.8	8.8	8.4	6.0	6.8	6.4	6.2	6.8	5.6	6.2	4.0	7.8	8.6	5.6	5.8	8.9	4.8	8.2
N	9	3.6	1.3	1.9	1.6	2.4	2.2	1.0	1.0	1.4	2.0	1.9	1.6	1.5	2.1	1.9	2.1	0.8	0.8	2.1	1.9
	10	3.1	4.1	1.2	1.9	3.6	3.3	0.9	1.0	2.6	1.4	1.6	2.7	2.1	1.2	1.3	1.1	2.3	2.8	1.4	2.3
	11	0.2	0.1	0.3	1.2	0.5	0.9	0.8	0.9	1.5	0.6	0.8	0.1	0.2	1.2	0.9	1.2	0.8	0.1	0.8	1.0
	12	2.7	0.9	2.5	2.3	1.9	2.1	1.9	2.8	0.9	1.4	1.5	0.4	2.0	2.6	1.2	2.2	2.2	2.1	1.5	1.2
	13	0.5	0.6	0.1	0.0	0.5	0.1	0.1	0.2	0.1	0.1	0.3	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1

A-Deghali Tank, Gauhati
B-Ulubari Fish Pond, Gauhati
C-Fish Pond, Byrnihat
D-Domestic Pond, Byrnihat
E- Fish Pond I, Kyrdem Kulai
F- Fish Pond II, Kyrdem Kulai
G-Fish Pond I, Mawpun
H-Fish Pond II, Mawpun
I-Domestic Pond, Mawprem
J-Lady Hyderi Park Pond-I Shillong

K-Lady Hyderi Park Pond II, Shillong
L-Golflink Pond, Shillong
M-Pologround Pond, Shillong
N-Fish Dale Pond I, Shillong
O-Fish Dale Pond II, Shillong
P-Fish Dale Pond III, Shillong
Q-Pond I, Upper Shillong
R-Pond II, Upper Shillong
S-Fish Pond, Ladthalaboh

1. Air temperature
2. Water temperature
3. Secchi disc
4. pH
5. Conductivity
6. Total alkalinity
7. Oxygen

8. Carbon dioxide
9. Phoschate
10. Silicate
11. Nitrate
12. Calcium
13. Magnesium

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Table-2 : Physico-chemical data of the twenty lentic systems.

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
	1	28.0	26.0	23.0	24.0	24.0	26.0	26.0	27.0	15.0	14.0	14.0	18.0	22.0	17.0	17.0	17.0	14.0	17.0	16.0	14.0
	2	27.0	27.5	20.0	25.0	23.0	23.0	24.0	25.0	10.0	12.0	14.0	17.1	17.1	16.0	16.0	16.0	14.1	12.0	14.0	14.0
	3	41.0	40.0	60.0	30.0	35.0	40.0	40.0	60.0	64.0	60.0	45.0	30.0	20.0	50.0	50.0	40.0	40.0	60.0	60.0	58.0
W	4	9.6	7.6	7.6	7.4	5.9	6.0	5.9	6.1	5.2	5.4	5.4	5.1	5.8	5.8	5.8	6.0	5.9	5.7	5.4	5.2
I	5	173.1	168.0	78.4	0.0	10.5	15.7	9.8	10.3	50.8	60.2	42.9	17.9	94.5	16.1	14.9	20.2	31.5	7.1	30.9	62.0
N	6	120.2	104.0	46.8	48.8	14.0	12.6	12.0	10.0	25.0	30.2	28.4	14.0	24.0	20.8	20.0	24.6	20.6	20.0	16.8	24.0
T	7	0.9	7.2	4.0	4.6	10.0	8.0	4.0	6.0	4.6	3.0	3.8	48.0	16.0	2.0	2.8	3.2	2.4	5.0	3.8	3.0
E	8	9.2	6.8	6.2	8.2	7.2	6.0	7.6	7.2	5.6	7.6	4.8	5.2	5.9	8.8	7.2	6.4	4.8	7.6	4.6	4.8
R	9	2.9	1.4	1.6	1.9	2.8	0.0	2.2	1.8	1.4	2.8	1.9	1.5	2.6	1.9	1.8	2.0	0.8	1.8	1.5	2.0
	10	3.6	4.4	0.8	0.8	3.2	2.9	1.5	0.9	2.1	1.4	2.1	3.6	1.2	1.0	1.6	1.7	2.1	3.4	1.4	2.4
	11	0.2	0.2	0.2	1.3	0.3	1.4	0.4	0.6	0.2	0.6	1.6	0.1	0.1	1.4	1.0	1.4	0.7	0.1	1.0	0.8
	12	2.5	0.7	2.1	2.1	1.7	1.7	1.4	2.0	0.9	0.8	1.3	0.6	2.5	2.2	2.0	2.0	2.2	1.0	1.7	1.1
	13	0.7	0.5	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.3	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.1	0.0

A-Deghali Tank, Gauhati
B-Ulubari Fish Pond, Gauhati
C-Fish Pond, Byrnihat
D-Domestic Pond, Byrnihat
E- Fish Pond I, Kyrdem Kulai
F- Fish Pond II, Kyrdem Kulai
G-Fish Pond I, Mawpun
H-Fish Pond II, Mawpun
I-Domestic Pond, Mawprem
J-Lady Hyderi Park Pond-I Shillong

K-Lady Hyderi Park Pond II, Shillong
L-Golflink Pond, Shillong
M-Pologround Pond, Shillong
N-Fish Dale Pond I, Shillong
O-Fish Dale Pond II, Shillong
P-Fish Dale Pond III, Shillong
Q-Pond I, Upper Shillong
R-Pond II, Upper Shillong
S-Fish Pond, Ladthalaboh
T-Thadlaskein Lake Jowai

1. Air temperature
2. Water temperature
3. Secchi disc
4. pH
5. Conductivity
6. Total alkalinity
7. Oxygen

8. Carbon dioxide
9. Phoschate
10. Silicate
11. Nitrate
12. Calcium
13. Magnesium

TABLE 3
LIST OF PLANKTON GENERA RECORDED FROM TWENTY LENTIC SYSTEM

I PHYTOPLANKTON

1. *Anabaena*
2. *Actinastrum*
3. *Antrodesmus*
4. *Ankistrodesmus*
5. *Botryococcus*
6. *Bacillaria*
7. *Closterium*
8. *Coelosphaerium*
9. *Cosmarium*
10. *Calonsis*
11. *Coelastrum*
12. *Cylindrocystis*
13. *Chlamydomonas*
14. *Chryaococcus*
15. *Ceratium*
16. *Characium*
17. *Dictyosphaerium*
18. *Desmidium*
19. *Diatoma*
20. *Dinobryon*
21. *Euglena*
22. *Eudorina*
23. *Euastrum*
24. *Eutonia*
25. *Fragillaria*
26. *Gymnozyga*
27. *Gomphonema*
28. *Gloeocapsa*
29. *Gonium*
30. *Gleocystis*
31. *Gymnodinium*
32. *Gonatozygon*
33. *Hormidium*
34. *Merismopedia*
35. *Microcyatis*
36. *Mastogloia*
37. *Micrasteriae*
38. *Meridion*
39. *Navicula*
40. *Nitzschia*
41. *Netrium*
42. *Oedogonium*
43. *Oscillatoria*
44. *Phacus*
45. *Pandorina*
46. *Peridinium*
47. *Pediastrum*
48. *Pleurotaenium*
49. *Pinnularia*
50. *Penium*
51. *Rhopalodina*
52. *Synedra*
53. *Staurastrum*
54. *Scenedesmus*
55. *Spirogyra*
56. *Stauronsis*
57. *Surirella*
58. *Selenastrum*
59. *Spirulina*
60. *Trachelomonas*
61. *Tetraedron*
62. *Tribonema*
63. *Urocelus*
64. *Uronama*
65. *Ulothrix*
66. *Volvox*
67. *Westella*
68. *Xa nthidium*
69. *Zygnema*

TABLE 3 (Contd.)

II - ZOOPLANKTON

1. *Adineta*
2. *Alonella*
3. *Archella*
4. *Asplanchna*
5. *Blespherisma*
6. *Bosmina*
7. *Brachionus*
8. *Centropyxis*
9. *Ceriodaphnia*
10. *Chodatella*
11. *Chydorus*
12. *Coleps*
13. *Corurella*
14. *Cyclops*
15. *Cypris*
16. *Diaptomus*
17. *Difflugia*
18. *Euchlanis*
19. *Philina*
20. *Keratella*
21. *Lecane*
22. *Mesocyclops*
23. *Moina*
24. *Monstyla*
25. *Philodina*
26. *Polyarthra*
27. *Scapheloberis*
28. *Symocephalus*
29. *Synchaeta*
30. *Testudinella*
31. *Trichocerca*
32. *Triplocarus*

Table-4 : Abundance of phytoplanktonic genera (Number/litre) in summer season at the twenty lentic systems

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1						1150				200				50				10		
2							10													40
3			-			2000														
4			20		880	250		20	20			160								
5									10											
6					-							80								
7	60	160	60	10		170	20			90			1290		260	40	280	70	290	
8		290	90					3900												
9			10	20		200	610	40	20		40	640		20	60	20	40	310	10	290
10			20					-												
11				610					860		290			10				20		
12					80	70										-				
13									3160											
14													-	150	290	160			180	-
15												-			160	80	80	-		80
16																	30			
17	40			32480				80			640									
18			120								40			90	1140	210	80	10	60	
19																		10		
20							1640					1480			-					1440
21	120	120	120	160	10	50				10				160	40		80	10	140	80
22		7240					80	10					110			-		10		
23						150				120								50		10
24																		60		
25																	-			
26		160								80	10		80		-			10	-	
27				190																
28		-							20			-			60	-	440	20		10
29					60														-	
30							260			100										
31										-										-
32		-	-										-	-	-			300	20	
33	-		-	-	-			-	-	-			-				50	-	-	
34	140	-	-	-	-	-		-	-	-				120		-	-	-	160	-

A to T : Names of the Ponds as for Table-1. *1 to 69 : Same as in Table-3.*

Contd. on next page

Table-4 : Abundance of phytoplanktonic genera (Number/litre in summer season at the twenty lentic systems

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
35		2800				1150				200				50	-	-	-	10		1440
36			140													60				-
37						100	100	200		60							10	30	120	-
38	•								-			-		20		80				
39	20	80	310	40	10	570	20	730	100	80	90	2190	110	250	160	50	1180	760	80	80
40				210			40	2460	40	10		150			-		80	40	20	60
41					-	50		-												-
42																	3360			
43	300										-			160	20		20	10	40	80
44	10	1620	10							120	60		480	110	210		240		80	160
45	540				640	270	120	20					160	250	160					-
46	890			10		50							200			10			140	260
47			160		120460	1250	260	2730	2960			120			280	80	40	30	260	
48			20	200		320				60	60									
49				40			90			60	10			40		60		270	180	20
50						75		20		40										
51	-													20		80		10		
52	60		40				40													
53		40	210	96210	4500	132000	2910	20	210	240	3420				260	20		70		2040
54			1090	34810	2820	750	60	1730	20	180	210	180	600	80	80	420	40	360	600	220
55			160				10			60	80			20		140		160	220	
56			80						10					10				60		
57			20			500		2930			40			410	210			30	40	40
58					119210													10		
59							140							-						
60		400			-															
61																		10		
62					40															
63		124400																		
64			50			1075										10				
65						70								170						280
66	120	46990																		
67					480	2300	620					80							120	
68																		80		
	2300	184300	2750	164990	248990	143420	7040	14790	7430	1510	4990	5080	3030	2140	3390	1520	6050	2820	2760	6630

A to T : Names of the Ponds as for Table-1. *1 to 69 : Same as in Table-3.*

Table-5 : Abundance of phytoplanktonic genera (Number/litre) in the spring season of the twenty lentic systems.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1		-	-	-	-	1410	-	-	-	240	-	-	-	210	-	-	-	110	-	-
2	-		-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-		240	180		-	-	-	-	-	-	-	-	-	-	-	-	-
4			40		40	1640		60	40	-	-	90	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-		-	-	-	-	80	-	-	-	-	-	-	-	-
7	10	480	40	10						170	-		2160	180	140	20	120	100	460	-
8	-	860	180	-	-		-	2940	-	-	-	-	-	-	-	-	-	-	-	-
9				50		40	-	100	10		80	820	-	60	40	40	80	180	20	140
10			80	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-
11	-			410		-		-	140		460		-	130	-	-	-	20	-	-
12		-	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13		-		-	-	-	-	-	2160				-	-	-	-	-	-	-	-
14	-	-		-	-	-	-				-	-	-	80	410	210	-	-	320	-
15	-	-	-	-	-	-		-		-	-	-	-	-	220	20	-	-		40
16	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	-	-	-
17	-	-	-	36410	20	-		-	-	-	860	-	-	-	-	-	-	-	-	-
18	-		60	-	-	-	-				10	-		40	80	160	80	40	20	-
19	-	-		-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-		-	-	-	-	-	2100		-	-	-	-	-	-	1620
21	860	480	20	90	50	-		-		10	120	-	160	40	20	-	160		10	60
22	-	-	-	-	-	-	-	-	-	-		-	840	-	-	-	-	-	-	-
23	-	-	-	-	-	80	-	-	-	160	-	-	-	-	-	-	-	-	-	40
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-				-	-	-	-	60	-	-	-	-	-
26	-	390	-	-		-	-		-	20	20	-	120	-	-	-	-	-	-	-
27	-	-	-	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	120	-	-	-	-	-	80	-	40	160	-	10
29	-		-	-	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	160	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	10	-
33	-	-	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	200	-	-	-	-	-	-	-		80	-	-	-	-	50	-	-		210	-
35	-	19642	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6940

A to T : Names of the Ponds as for Table-I. *1 to 69 : Sames as in Table-3*

Contd. on next page

Table-5 : Abundance of phytoplanktonic genera (Number/litre) in the spring season of the twenty lentic systems.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
36			40			-		-		-	-	-	-	-	-	40	-	-	-	-
37			20		-	680		120		20	-	-		-	-	-	-	-	90	-
38			-	10	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-
39	10	10	280	140	20	190	-	210	10	10	60	1480	680	160	180	100	600	600	110	100
40			120	10	-	-		1960	60	10		920		-	-	10	-	40	110	80
41	-			-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
42			-	-	-	-	-	-	-			-		-			1140	-	-	-
43	240	-	-	-	-	-			-	-		-		50	10		120	40	20	20
44	160	1210	10		-	-				180	140	-	610	260	180		260	-	20	40
45	290	-	-		210	40	-	40	-	-	-	-	80	680	180	-		-	-	-
46	1040			180		-		-	-	80	-		480			50	-		210	190
47			200		1460	160	-	3140	1620			60			90	20	40	40	120	
48			60	150		200	-	-	-		140				-	-	-	-	-	-
49				60	-	-				40	10			10	60	10	-	40	40	60
50					-	20		20		20	-	-			-				-	-
51				-		-				-		-		10		10		20		-
52			50		-		-		-			-	-		-				-	-
53		34620	140	1460	21680	1960		110	150	160	2100				120	160	-	40		1620
54			340	16940	1440	190		4160	120	140	180	120	410	260	40	210	60	120	1620	120
55			240						-	80	20			240		20		80	210	-
56			200			-		-	40					40	-		-	20	-	-
57			160					240	-	-	80			120	110		-	-	80	20
58					1460	390		-	-	-	-	-			-	-	-	20	-	-
59								-		-	-	-	-		-		10	-		-
60		120			-			-		-	-					-	-	-	-	-
61				-				-	-	-	-				-	-	-	-	-	-
62					10	-		-	-		-	-		-		-		-	-	-
63		6480			-		-		-	-		-	-	-	-	-	-	-	-	-
64			10		-	10					-	-		-	-	160	-	-	-	-
65					-	20				-	-	-		150		50	-	-	-	200
66	40	36880				-		-		-				-	-		-	-	-	-
67					6110	1690		-		-		40		-		-	-	-	190	-
68								-			-			-	-		-	-	-	-
69								-	-	-	-	-			-	-		-		-
	2850	114780	2410	56040	32940	8900		13100	4500	1580	4280	5710	5540	2810	2070	1310	2780	1870	3870	11390

A to T : Names of the Ponds as for Table-I. *1 to 69 : Sames as in Table-3*

Table-6 : Abundance of phytoplanktonic genera (Number/litre) in autmn season at the twenty lentic systems.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	-	-	-	-	-	960	-	-	-	40	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	10	-	-	-	-	-	-	-		-	-	-	-	160
3	-	-	-	-	6390	1910	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4		-	10	-	120	10	-	-	10	-	-	50	-	-	-	-	-	-	-	-
5	-	-		-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
7	80	10				260	160	-	-	20	-	-	80	10	310	-	140	20	80	-
8		220	60	-	-	-	-	180	-	-	-	-	-	-	-	-	-	-	-	-
9	-		20	80	-		150	30	10	-	80	470	-	20	80	10	60	40	-	980
10	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-		260		-	-	-	720	-	160	-	-	20	-	-	-	40	-	-
12		-		-	10	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	-	-		-	-	-	-	-	4210	-	-	-	-	-	-	-	-	-	-	-
14	-	-		-	-	-	-	-	-	-	-	-		60	340	100	-	-	30	-
15	-			-	-	-	-	-	-	-	-	-	-	-	210	-	20	-	-	210
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-
17	10	-		16030		-	-	-		-	40	-	-	-	-	-	-	-	-	-
18	-		160	-				-	-	-	60	-		80	70	180	120	20	-	-
19	-	-		-	-		-	-	10	-	-		-	-	-	-	-	40	-	-
20	-	-		-	-		290	-	-	-	-	620	-	-	-	-	-	-	-	280
21	110	290	20	40	110	10	-	-	10	40	60	-		10	160	-	-	20	60	-
22	-	1400	-	-	-	-	60	10	-	-	-	-	260	-	-	-	-	-	-	-
23	-	-	-	-	-	40	-	-	-	90	-	-	-	-	-	-	-	130	-	40
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	80	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-
27	-	-	-	210	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-			-	-	-	-	40	-	-	-	-	-	100	-	20	10	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-		120	-	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	160	60	-
33	-	-	40	-	-	-	-	-	-	-	-	-	-	-	-	-	90	-	-	-
34	80	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-
35	-	1480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6400

A to T : Names of the Ponds as for Table-I. *1 to 69 : Sames as in Table-3*

Contd. on next page

Table-6 : Abundance of phytoplanktonic genera (Number/litre) in autumn season at the twenty lentic systems.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
36			80												150	100		-	-	
37						480	60	120		10							20	80	40	-
38				80										40		10		-	-	-
39		40	80	180		660	140	610			180	1680	480	160	290	160	410	640	140	160
40				20			200	860	10	40		140				20	120	140	160	
41																				
42							-		-					-		-	880		-	-
43	160									-					40		60	20	60	40
44		240	160							90	80		120	210	190		80			20
45	140				1860		170				-		150	620	110					-
46	290					60													120	80
47			40		43630	960	40	400	2040			110			290	10	120	80	60	
48			80	20		160			-	10	80									
49							60				60			120	20	50		30	20	20
50						120		40		10										
51																20				
52	20		120				20				-			50		-				
53		160	150	7960	39600	36010	2040	160	180	160	160				140	40		10		2090
54			860	2060	3690	180	1240	680	60	80	180	40		140	60	60	160	110	120	160
55			40								10			60					110	
56			60						40									60		
57			10					110			10			120	80			20	10	
58					2160	180														
59	-						60													
60		1160																		
61					-													60		-
62			-		960	-					-				-				-	
63		1460										-								
64			10			150										20		-		
65	-	-	-			10					-			80						2980
66		29640																		
67					9640	2140	580				-	10		-		-			40	20
68																		60	-	
	890	36180	2010	26940	108170	44320	5400	3200	7360	590	1620	3130	1090	1810	2640	780	2310	1790	1110	13640

A to T : Names of the Ponds as for Table-1. *1 to 69 : Same as in Table-3.*

Table-7 : Abundance of phytoplanktonic (Number/litre) genera in winter season at the twenty lentic systems.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	-	-	-	-	-	20	-	-	-	10	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	40	-	-	-	-	-	-	-	-	-	-	-	-	20
3	-	-	-	-	7720	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	320	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-			10	-	-	10	20	60	-	180	40	40	-
8	-	380	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-	-	-
9	-		180	10	-	-	260	10	-	-	10	640	-	10	10	10	20	10	80	40
10	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	120		-	40	-	-	-	310	-	-	20	-	-	-	-	-	-
12	-	-	-	-	10	80	-	-		-	-	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	-	680	-	-	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	-		-	-	-	-	20	140	50	-	-	60	-
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	-	-	10
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-	-
17	80	-	-	180	120	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	290	-	-	-	-		-	-	190	-	-	20	-	10	20	40	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-
20	-	-	-	-	-	-	80	-	-	-	-	440	-	-	-	-	-	-	-	4620
21	1600	-	80	120	120	10	-	-	40	120	140	-	140	40	50	-	80	-	220	20
22	-	-	-	-	-	-	20	-	-	-	-	-	50	-	-	-	-	10	-	-
23	-	-	-	-	-	-	-	-	-	110	-	-	-	-	-	-	-	60	-	40
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	10	-	-	-	-
26	-	240	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-
27	-	-	-	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
29	-	-	-	-	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	-	1610	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	310

A to T : Names of the Ponds as for Table-I. *1 to 69 : Sames as in Table-3*

Contd. on next page

Table-7 : Abundance of phytoplanktonic (Number/litre) genera in winter season at the twenty lentic systems.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
36	-	-	110	-	-	-	-	-	-	-	-	-	-	-	40	80	-	-	-	-
37	-	-	-	-	-	160	30	-	-	20	-	-	-	-	-	-	20	40	70	-
38	-	-	-	20	-	-	-	-	-	-	-	-	-	100	-	40	-	-	-	-
39	80	120	120	330	30	780	590	240	10	100	120	6320	1490	240	360	260	300	890	240	360
40	-	-	-	190	-	-	140	160	40	60	-	120	-	-	-	40	80	100	280	60
41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	740	-	-	-
42	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-
43	-	490	-		-	-	-	-	-	10	-	-	20	70	40	-	10	-	-	40
44	-	-	-		1360	-	40	10	-	-	-	-	540	-	-	-	-	-	-	-
45	60	-	-	-	-	-	-	-	-	-	-	-	180	-	-	-	-	-	60	-
46	-				18340	140	160	160	1360	-	-	20	-	-	40	-	60	20	60	-
47		-	110	-	-	-	-	-	-	-	10	-	-	-	-	-	-	-	-	-
48		-			-	-	30	-	-	-	40		-	250	140	180	-	180	-	-
49	-	-	-	-		-	-	-	-	10	-	-	-	-	-	-	-	-	-	-
50		-	-	-	-	-	-	-	-	-	-		-	160	-	90	-	60	-	-
51	120		80	-	-	-	30		-	-	-			40	-	-	-	-	-	-
52	-		80	1840	12600	10460	1200	280	50	90	140	-		-	-	20	-	20		460
53			160	1440	1800	20	430	860	80	100	40	10	10	80	10	40	80	100	480	180
54		-	10	-	-	-	-	-	-	10	20		-	-	-	-	-	-	-	-
55			140		-	-	20	-	-	-	-	-	-	20	-	-	-	120	-	-
56			90	-	-	-	-	1610	-		10	-		40	100	-	-	80	20	80
57		-	-	-	1120	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-
58	-	-		-	-	-	10	-	-	-	-	-	-	-	-	-	60	-	-	-
59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	-	-
61	-	-	-	-	2840	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
62	-		-	-	-	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-
63	-	-	10	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-	-	-
64	-	-	-	-	-	-	-	-	-	-	-	-	-	80	-	-	-	-	-	-
65	130	38050			-	510	-	-	-	-	-	-	-	-	-	-	-	-	-	160
66	-		-		1780	-	140	-	-	-	-	-	-	-	-	-	-	-	40	-
67	-	-		-	-	-	-	-	-	-	-		-	-	-	-	-	10	-	10
68	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2150	40890	1470	4340	48140	13000	3270	3340	2380	650	1030	7600	2460	1210	1070	830	1820	2010	1660	6430

A to T : Names of the Ponds as for Table-I. *1 to 69 : Sames as in Table-3*

Table-8 : Quantitative occurrence (Unit/litre) of spring zooplankton in twenty lentic system.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1		140		-				-												
2			-	20	-	-			-		20	10	20							
3	10		40	-	-	10			-											
4		190	-	20	-	10	D	240		-			10	120	160	20			90	
5	-	-	-	-		-			30					-		-				
6			-	-		90	R			110	90			120	110	210	-		50	
7	310			40		-		10			20				10				20	20
8	120		80	-	20	20	I		-				-	50	20					
9													-							
10	-				100	-	E						20			-				60
11			10		10	-				10	10				160				140	-
12					-		D		10								200			
13	-		-			-													160	140
14		490	-	100	60	210		100	120	40	180	10	40	70	80	160	80	80		
15										-			20		50					
16	260	180			40	-					-						-			
17			110			-								120	10			-		-
18					-	860										-			-	
19		-			-			-			-			-			-		-	-
20		-		60	30	70		290		120	160	60		10	20	60	10	20	20	60
21		140		-					60	80		40		150	40	60		140	10	
22	120			-						-						-	-			-
23	50	10								-				-	-			-	-	-
24	-	-			-	-		-					40	-	-	-	30	-		-
25	20			-								-				-	-		-	
26	100				-	-			-	-		-	-	-		-	-	-	-	160
27	-	-	-			-			-	-	-	-	80	-	-	-	-	-	-	-
28	-			-	-		U				-			-	-		80	-	10	-
29	-	-	-	-	-	-		-				-	-	-		-	-	-	-	-
30		-	-	-	-	-	P	-	140			-	-	-	-	-		-	-	-
31	-	-	-	-	-	210		140	-	-	-	-	-	-	-	-	-	-	150	-
32	-	-	-	-	-	-		-	-	-	-	-	-	-	-		-	-	-	-
	990	1150	240	240	260	1480		780	360	360	480	120	230	640	660	510	400	240	650	560

A to T : Names of the Ponds as for Table-1. *1 to 69 : Same as in Table-3.*

Table-9 : Quantitative occurrence (Units/litre) of summer zooplankton in twenty lentic systems.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1			-						-	-		-				-	-	-	-	-
2				60		-				-		40	10	-		-	-		-	-
3	20		10			20			-		-			-	-	-		-	-	-
4	-	240		10		100	-	80	-		-	-	80	60	190	40		-	10	-
5	-		-	-			-	-	210		-		-	-	-	-	-	-		
6	-		-	-		50			-	140	10	-		60	10	180			160	
7	240			10				30	-	-	40			-	110			-	80	100
8	120		20		220	20		-	-				-	90	10	-		-		
9			20		-			-	-	-	-		-	-	-					
10					220			-	-				120							
11			60		80					20	20									20
12								-	10	-							840		60	
13					80				10					-				10		
14		100		120	60	170	60	340	40	10	20	140	80	90	90	80	140	10	40	20
15													10		60		200			
16	180	140			10		140													140
17	10													160	60		-			
18						770	20													
19								10					-							
20		-		20	120	150	60	540		160	210	10		160	40	80	160	-	60	20
21		110							30	20		80		20	110	10		10		
22	80			-																
23	10	320																		
24	-												10				10			
25	50									-				-						-
26	410																			280
27							-	-					-			-				
28					-						40						160		210	
29							110													
30				-					340				-			-				
31			40			20		60					-					10	20	
32	-							-												
	1120	910	150	220	800	1300	390	1060	640	350	340	270	310	640	680	390	1510	40	640	580

A to T : Names of the Ponds as for Table-1. *1 to 69 : Same as in Table-3.*

Table-10 : Quantitative occurrence (Units litre) of autumn zooplankton genera in twenty lentic system.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	-	120																		
2				-	-	-		-				60	60							
3	10	-	-			80	-							40	-					
4		290	-	50	-		-	410							80	10			100	
5				-					560				-		-					
6	-	-	-		-	20			-	10	20		-	40	80	50	-		80	-
7	220			110							10				50				10	60
8	190		60		80		-							100	40					
9			140			-		-	-					-			-			
10					140		-													
11	-		20	-	90			-	-	60					-					10
12			-	-					80		-								180	
13	-				40	-	-		90			-			-			80		
14		80		20	150		20	110	120	80	40	80	160	110	20	10	180	20	10	80
15		-		-					-		-				20		60			
16	60	260		-			40							-						60
17	-	-	10		-		-				-			80						
18	-	-		-		20	10	-	-			-							-	
19	-	-	-	-		-		10	-	-	-	-			-	-	-			-
20	-	-		80	180	190	-	160	-	180	40	-	-	90	60	100	90	20	10	40
21	-	150	-		-		-		60			10		10	-	10		60		
22	140		-	-	-			-			-		-			-			-	
23	60	100		-	-	-		-	-	-	-	-			-			-	-	-
24	-	-	-	-	-		-	-		-	-	-		-			60		-	-
25	80	-	-			-	-			-	-	-	-	-	-	-	-	-	-	-
26	380	-	-			-	-	-	-		-		-		-	-	-	-	-	190
27	-		-	-	-	-			-	-	-	-	-	-			-	-	-	-
28	-	-	-	-		-	-	-	-	-			-	-		-			60	-
29	-	-	-	-	-	-	150	-	-		-	-	-	-	-		-	-	-	-
30	-	-	-	-	-	-	-	-	160	-	-	-	-	-	-		-	-	-	-
31	-	-	60	-	-	40	-	80	-	-	-	-	-	-	-	-	-	-	10	-
32	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	-	-
	1140	1000	290	260	680	350	220	770	1070	330	110	150	220	470	350	180	390	220	460	440

A to T : Names of the Ponds as for Table-1. *1 to 69 : Same as in Table-3.*

Table-11 : Quantitative occurrence (Units/litre) of winter zooplankton genera in twenty lentic systems.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1		20																		
2			-	150								10	40				-		-	
3			-			60									-					
4		1520		70				560					10	20	20	10			210	
5			-				-												-	
6						80				210	40				10				20	
7	140							80			80				20				60	
8	60		80		210									20	20					
9																				-
10					180	-												-		
11			40		120					20										
12																	120		10	-
13									140									60		
14		120					20	80		10		60	110	40			220	10		10
15																	60			
16	310	340			250		20										-			80
17	60		70									40		10	10					
18						160	10													
19								60												
20				190	40	60	160	20			110	80		100	80	150	210	80	80	180
21		100							80			90		80		80		20	50	
22	290									-										-
23	40																			
24													10				40			
25	10																			
26	160									-										40
27		-											10							
28																	60			
29							10													
30									80					-						
31			130																	
32																		20		
	1070	2100	320	410	800	360	220	920	300	240	230	280	180	270	160	240	710	190	430	310

A to T : Names of the Ponds as for Table-1. *1 to 32 : Names of zooplankton genera (Same as in Table-3.)*

SUMMARY

Twenty waterbodies of Ri Bhoi and surrounding areas of Khasi and Jaintia hills of Meghalaya State were surveyed for their physico-chemical and biological nature. The ponds represented different types and were situated at different altitudes starting from around 100 m above sea level (Valley of Gauhati) to about 1900 m above sea level (Shillong peak).

It was observed that as one goes from hills down to lower altitudes, the values of temperature, both air and water, pH, conductivity, and total alkalinity increased but dissolved oxygen exhibited a reverse pattern. Among nutrients, the values were quite less to be indicative of any relationship to altitude except phosphate where a slight increase was noticed in lower altitudes.

Among phytoplankton, the managed waterbodies like fish ponds contained less varieties but those present, were higher in density. Green algae and diatoms dominated in the ponds of higher altitudes which were replaced by desmids and blue green algae in ponds of lower altitudes and plains.

Variations in zooplankton also reflected almost similar pattern. While rotifers occur more in higher altitude ponds, crustacean zooplankton were in abundance in plains.

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WILDLIFE AND ITS CONSERVATION IN MEGHALAYA

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INTRODUCTION

Wildlife in the Indian context came into being only after the promulgation of the Indian Wildlife (Protection) Act of 1972. Wildlife as defined therein, broadly includes all living species of Flora and Fauna. But unlike Biodiversity, the immediate implications of Wildlife do not cover each and every species of plants and animals. As a priority it takes into account only those species which were designated earlier as wild game or of high economic value, and especially those which are rare, or threatened with extinction.

Wildlife therefore includes Mammals, Birds, Reptiles, Fishes considered as hunter's pride as also some colourful butterflies and beetles. Some of these animals were killed for their meat, hide, horns, antlers and tusks. They were at one time abundant but due to destruction of habitat and human interference have now become scarce and, hence, need protection before they are completely wiped off from the face of the Earth. This knowledge comes from detailed accounts of natural history, accounts of hunters and their game, and extensive literature on Flora and Fauna written by both specialists and naturalists.

The Flora and Fauna of the north eastern hills of India of which Meghalaya is a part possess a diverse and interesting mosaic of plant and animal species. Much of these living species are either endemic or very rare. The Nokrek Biosphere Reserve-cum-Gene-Sanctuary and the Balphakram National Park are repositories of the States rare and threatened species. The geographical location of Meghalaya in the North-Eastern Region of India favoured immigration and introduction of various animal and plant species from the neighbouring States of North-East India as well as from bordering countries like China, Burma and Bangladesh.

FOREST TYPES

The luxuriant, dense forest covers of the Khasi and the Garo Hills in particular are due to the interplay of temperature and abundant rainfall. A long stretch of original vegetation cover between river Kynshi in the East and the Simsang Someswari river valley, still remains untouched by man. Another striking feature of Meghalaya is the presence of remnants of innumerable small primary forests called sacred groves or *Law Lyngdoh* in the Khasi and Jaintia Hills. From time immemorial, the plants in these forests are left unhindered to grow, live, decay and re-grow, without any interference from man. The local villagers do not collect the fallen leaves, twigs or branches nor does anyone pluck fruits. Neither is the wood of trees or even shrubs and herbs used for fuel, timber,

medicines or even for ornamentation. It is a belief that if trees are cut or flowers plucked the wrath of the deities which reside there would fall on them. The one at Mawphlang and another at Shillong peak deserves mention.

The State of Meghalaya boasts of nearly eight forest types Sal, Mixed Decicuous, Evergreen, Bamboo, Grassland, very Moist Sal, Eastern Himalayan Deciduous and Assam sub-Tropical Pine. In the upper hill regions from 1200 meters above, in the Central Plateau of Khasi Hills, the most prominent vegetation is the Coniferous Pine trees. From the Central Plateau upto Jowai and Pasri in Jaintia Hills, Khasi Pine can be found -- though somewhat stunted in Jaintia Hills. The Northern hills abound in forests of red Rhododendrons and a diversity of Orchids. In the middle hill slopes between 600 meters and 1200 metres altitude, temperate forests and Grasslands occur, while the lower hill slopes between 300 meters and 600 meters abound in sub-Tropical Deciduous forests and Grasslands and finally in the lower hills, Canes and Bamboos are abundant.

HABITATS

Unfortunately, Meghalaya has barren/degraded wasteland amounting to 8150 sq.km. All this is primarily due to shifting cultivation also known as *Jhum*. This is a practice of cultivation where forests are cut and burned and a multiple number of crops like rice, barley, cucumber etc. are harvested in a year. Thereafter the area is left as fallow for an indefinite period. Earlier this period of leaving the land fallow allowing secondary vegetation growth was for nearly 20-30 years. This helped the soil fertility to return to its near original state. Unfortunately this period of allowing the land to lie fallow has been reduced to only 4-5 years primarily due to increased population pressure. This renders the land totally degraded. Most of all, this also renders the forest corridors bare, leading to large scale depredation of elephants. Moreover the population of Gibbons (the only living ape in India) and other non-human primates is reduced due to the non-availability of territory and contiguous forest canopy for foraging. The Forest Department of Meghalaya has taken steps to rectify this situation. 427 sq.km. of barren land has been brought under artificial plantation upto the Seventh Plan. The species planted are mostly Khasi Pines and broad leaved economic and fast growing species. The physical target for the Eighth Plan is proposed to be 620 sq.km.

BIOGEOGRAPHY

Meghalaya is known to be a paradise for Botanists, But it is no less to the Zoologists for its interesting, rare and diverse faunal wealth. Many biologists consider Meghalaya as the gateway through which many species of *Indo-Chinese* origin particularly mammals migrated to Peninsular India. Though the present day Fauna of Meghalaya is now primarily of Indo-Chinese origin, however, Peninsular Indian Fauna are also abundant along with Ethiopian elements and Palearctic elements. Many of the relict species of animals confined to the Western Ghats have closely related species not only in Meghalaya but in the North East regions of India.

STATUS OF WILDLIFE

This chapter is primarily to highlight those animals which have been enlisted in the Schedules of the Wildlife (Protection) Act, 1972 and its subsequent amendments. The Schedules are based on the

status of the species viz., rare, endangered, threatened, vulnerable, etc. According to the threat of extinction, Schedule I contains those species which need top most priority, while Schedule II, III, IV and V have accordingly lesser degree of threat. Similarly some of them feature in Appendix I or II of CITES (Convention on International Trade in Endangered Species of Flora and Fauna) as well as in the ZSI Red Data Book of Indian animals.

Among the vertebrates it has been recorded till date that Meghalaya has 139 species of Mammals, 541 species of Birds, 94 species of Reptiles, 33 species of Amphibia and 152 species of Fishes. Of these 35 species of Mammals are endangered, vulnerable or insufficiently known. Similarly 10 species among Birds and 9 species among Reptiles are either endangered or vulnerabe.

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LIST OF THREATENED SPECIES OF ANIMALS

MAMMALIA

Nycticebus coucang bengalensis (Lacepede)	Slow Loris	IK
Macaca nemestrina leonina Blyth	Pigtail Macaque	V
Macaca arctoides (I. Geoffroy)	Stumptail Macaque	V
Presbytis pileatus (Blyth)	Capped Langur	V

Hylobates hoolock (Harlan)	Hoolock Gibbon	EN
Manis pentadactyla aurita Hodgson	Indian Pangolin	IK
Helarctos malayanus (Raffles)	Malayan Sun Bear	EN
Martes flavigula flavigula (Boddaert)	Yellowthroated Marten	V
Mustela kathiah (Hodgson)	Weasel	V
Melogale personata nipalensis (Hodgson)	Ferret Badger	V
Ailurus fulgens F. Cuvier	Red Panda	EN
Arctonyx collaris collaris F. Cuvier	Hog-Badger	IK
Aonyx cinerea concolor (Rafinesque)	Oriental Small Clawed Otter	V
Viverra zibetha zibetha Linnaeus	Large Civet	V
Viverricula indica (Desmarest)	Small Indian Civet	V
Paradoxurus hermaphroditus (Phallas)	Palm Civet	V
Paguma larvata neglecta Pocock	Himalayan Palm Civet	V
Arctictis binturong (Raffles)	Binturong	EN
Felis marmorata Martin	Marbled Cat	EN
Felis temmincki Vigors & Horsfield	Golden Cat	EN
Felis bengalensis bengalensis Kerr	Leopard Cat	V
Neofelis nebulosa (Griffith)	Clouded Leopard	EN
Panthera pardus fusca (Meyer)	Leopard	V
Panthera tigris tigris (Linnaeus)	Tiger	V
Elephus maximus indicus G. Cuvier	Asiatic Elephant	V
Cervus duvaucelli G. Cuvier	Swamp Deer	V
Tetraceros quadricornis (Blainville)	Fourhorned Antelope	V
Bos gaurus H. Smith	Gaur	V
Bubalus bubalis (Linnaeus)	Water Buffalo	EN
Capricornis sumatraensis (Bechstein)	Serow	V
Belomys pearsoni (Gray)	Small Flying Squirrel	V
Petaurista petaurista lylei Bonhote	Giant Flying Squirrel	V
Petaurista alborufous candidulus Wroughton	Wroughton's Flying Squirrel	V
Petaurista magnificus (Hodgson)	Hodgson's Flying Squirrel	V
Hylopetes alboniger alboniger (Hodgson)	Particoloured Flying Squirrel	V

EN = Endangered; V = Vulnerable; IK = Insufficiently Known

BIRDS

Platalea leucorodia major Temminck & Schlegal	Spoonbill	EN
Aviceda leuphotes syama (Hodgson)	Blackcrested Baza	V
Pandion haliaetus haliaetus (Linnaeus)	Osprey	V
Bambusicola fytchii hopkinsoni Godwin Austen	Assam Bamboo Partridge	V
Pavo cristatus Linnaeus	Indian Peafowl	V
Ptilolaemus tickelli austeni (Jerdon)	Brownbacked Hornbill	V
Aceros nipalensis (Hodgson)	Rufousnecked Hornbill	V
Rhyticero undulatus tichehursti Diegnan	Wreathed Hornbill	V
Anthracoceros malabaricus malabaricus (Gmelin)	Indian Pied Hornbill	V
Polyplectron bicalcaratum	Peacock Pheasant	V

REPTILIA

Kachuga tecta (Gray)	Indian Tent Turtle	V
Geoclemys hamiltoni (Gray)	Spotted Black Terrapin	V
Melanochelys tricarinata (Blyth)	Eastern Hill Terrapin	V
Lissemys punctata punctata (Lacepede)	Indian Flapshelled Turtle	V
Trionyx hurum (Gray)	Peacockmarked Spottedshelled Turtle	V
Varanus bengalensis (Daudin)	Common Indian Monitor Lizard	EN
Varanus salvator (Laurenti)	Water Monitor Lizard	EN
Varanus flavescens (Gray)	Yellow Monitor Lizard	EN
Python molorus (Linnaeus)	Rock Python	EN

EN = Endangered; V = Vulnerable; IK = Insufficiently Known

Distribution of major wildlife species with special reference to different districts & conservation areas of Meghalaya

Sl No.	Name	West Garo Hills	East Garo Hills	South Garo Hills	West Khasi Hills	East Khasi Hills	Ri-Bhoi	Jaintia	Nokrek B. R.	Balphakram National Park	Nongkhylum Wildlife Sanctuary	Siju Wildlife Sanctuary	Baghmara wildlife Sanctuary	Sacred Groves	Cities Ratings	IWPA Schedulle	Remarks (ZSI Rating)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	PRIMATES																
	Lorisidae																
1.	*Nycticebus coucang bengalensis*	+	+			+	+		+	+		+			I		
	Cercopithesidae																
2.	*Macaca nemestrina leonina*		+							+					II	I	V.R.
3.	*M. mulatta mulatta*														II	II	V.R.
4.	*M. assamensis*	+	+	+						+					II	II	C.
5.	*M. arctoides*	+	+	+							+				I	II	Sc.
6.	*Presbytis entellus*		+	+											I	II	C
7.	*P. p. pileatus*	+	+	+	+	-	+	+	+	+	+	+	+		I	II	C
	Hylobatidae																
8.	*Hylobates hoolock*	+	+	+	+	-	+	+	+	+	+				I	I	C.
	PHOLIDOTA																
	Manidae																
9.	*Manis crassicaudata*	+	+	+											II	I	R.
10.	*Manis pentadactyla aurita*	+	+	+		-			+	+	-	+			II	I	R.
	CARNIVORA																
	Canidae																
11.	*Canis aurius*	+	+	+	+	+	+	+	+	+	+	+	+			IV	C.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
12.	*Vulpes bengalensis*	+	+		+				-	+					II	IV	Sc.
13.	*Cuon alpinus*	+	+	+					+	+						I	V.R.
	Ursidae																
14.	*Selenarctos thibetanus*	+	+	+					+	+	+		+		I	II	Sc. Part
15.	*Helarctos malayanus*	+	+	+					+	+	+		+		I	II	R. Part 2
16.	*Melursus ursinus*	+	+	+					+	+			+			II	Sc.
	Procyonidae															Part 2	
17.	*Ailurus fulgens*	+	+	+					+	+					I	I	R.
	Mustellidae																
18.	*Martes f. flavigula*	+	+	+					+	+					II	II	Sc. Part 2
19.	*Mustela kathiah*				+	+									II	II	Sc. Part 2
20.	*Melogale personata nepalensis*				+	+	+								I		R.
21.	*Arctonyx c. collaris*				+	+	+			+						I	R.
22.	*Lutra lutra monticola*	+		+		+			+		+	+	+		II	II	R. Part 2
23.	*Aonyx cinerea*	+	+	+											II	II	R. Part 2
	Viverridae																
24.	*Viverra z. zibetha*	+	+	+	+	+	+			+		+			II	II	C. Part 2
25.	*Viverricula indica*	+	+	+		+	+			+	+	+			II	II	C. Part 2

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
26.	*Paguma larvata neglecta*	+	+	+	+	-	+	+	+				+		II	II	C.
															Part 2		
27.	*Actictis binturong*		+	+		+			+		+				I	I	R.
28.	*Herpestes urva*	+	+			+			+	+					IV	IV	Sc.
	Felidae																
29.	*Felis chaus*	+	+	+	+		+		+		+	+	+		I	I	C.
30.	*F. marmorata*	+	+	+	+	+	+		+			+		+	I	I	R.
31.	*F. temmincki*		+		+	+			+		+	+			I	I	R.
32.	*F. bengalensis*	+	+	+			+	+	+		+		+		I	I	R.
33.	*Panthera pardus fusca*	+	+	+					+	+	+				I	I	R.
34.	*P. tigris*	+	+				+	+	+	+					I	I	V.R.
	PROBOSCIDEA																
	Elephantidae																
35.	*Elephus maximus indicus*	+	+	+				+	+	+					II	II	C.
	ARTIODACTYLA																
	Cervidae																
36.	*Axis porcinus*	+	+	+			+	+	+	+					II	I	Sc.
37.	*Cervus unicolor*															I	R.
38.	*C. dauvaucelli*															I	R.
	Bovidae																
39.	*Tetraceros quadricornis*	+	+		+			+	+	+					II	I	
40.	*Bos gaurus*									+					II	I	
41.	*Bubalus bubalis*															I	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
42.	*Nemorhaedus goral*			+	+				+	+	+	+			II	I	
	LAGOMORHA																
	Leporidae																
43.	*Caprolagus hispidus*										+				I	I	
	RODENTIA																
	Sciuridae																
44.	*Belomys pearsoni*	+	+	+					+	+	+						
45.	*Petaurista petaurista*	+	+	+		+				+		+	+		I	II	
																Part 2	
46.	*P. albiventer*	+	+	+				+	+	+	+			+	I	II	
																Part 2	
47.	*P. a. candidulus*	+		+		+	+		+			+				II	
																Part 2	
48	*P. magnificus*		+		+	+		+	+	+	+			+		II	C.
																Part 2	
49.	*Hylopetes a. alboniger*	+		+		+		+		+	+	+				II	R.
																Part 2	
50.	*Ratufa bicolor gigantea*	+	+	+					+	+	+			+	II		Sc.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	AVES																
1.	Adjutant Stock *Leptoptilos dubius*	+												+	I	I	
2.	Lesser Adjutant *L. javanicus*															IV	
3.	White Ibis *Threskiornis aethiopica*	+		+		+										I	
4.	Spoonbill *Platalea leucorodia*															I	
5.	Large Whistling Teal *Dendrocygna bicolor*	+	+		+		+						+	+			
6.	Blyth's Baza *Aviceda jerdoni*														I	I	R.
7.	Goshawk *Accipiter gentilis*	+	+	+	+		+		+	+			+			I	C.
8.	Shikra *A. badius*	+	+	+	+	+		+		+	+	+	+			I	C.
9.	Crested Goshawk *A. trivirigatus*															I	C.
10.	Sparrow-Hawk *A. nissus melaschistos*	+	+				+			+						I	C.
11.	Eastern Besra Sparrow-Hawk *A. virgatus gularis*	+	+	+					+	+	+	+				I	Sc.
12.	White-eyed Buzzard Eagle *Butastur teesa*	+	+	+	+	+				+	+	+				I	Sc.
13.	Eastern Steppe Eagle *Aquila repax nipalensis*															IV	R.
14.	Black Eagle *Ictinaetus malayensis*	+	+	+		+	+	+				+	+	+		IV	R.
15.	Black or King Vulture *Sarcogyps calvus*															IV	V.R.
16.	Redbreasted Falconet *Nicrohiirax caerulescens*			+			+			+						IV	R.
17.	Peregrine Falcon *Falco p. peregrinator*	+	+		+		+			+		+				I	R.
18.	Merlin, *Falco columbarinus*	+	+	+							+	+			I	I	V.R.
19.	Kistrel, *F. trinnunculus*	+	+	+	+	+	+	+	+	+	+	+	+	+	I	I	Sc.
20.	Bamboo Patridge *Bambusicola fytchii*			+			+									I	Sc.
21.	Red Slurfowl *Galloperdix spadiacea*	+	+	+	+						+	+				I	R.
22.	Blyths Grybellied Tragopan *Tragopan blythii*									+	+					I	V.R.
23.	Kalij Pheasant *Lophura leucomelana*	+	+	+				+	+	+	+					IV	F.C.
24.	Peacock Pheasant *Polyplectron bicalcaratum*	+	+	+	+		+	+	+	+					I	I	Sc.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
25.	Common Peafowl *Pavo cristatus*																
	REPTILIA																
1.	Indian Mud Turtle *Lessemys punctata*	+	+	+	+	+	+	+							II	I	V.C.
2.	Eastern Hill Tortoise *Geochelone emys*	+	+		+		+	+		+					IV	IV	R.
3.	Bengal Monitor *Varanus bengalensis*	+		+	+	+		+							I	I	F.C.
4.	Water Monitor *V. salvator*	+	+	+		+	+	+	+			+			I	I	F.C.
5.	Indian Python *Python molurus*	+	+	+		+		+		+	+	+	+		I	I	R.
6.	King Cobra *Ophiophagus hannah*	+	+		+		+								I	I	F.C.
																	Part UP, Shillong

C = Common, R = Rare, V.R. = Very Rare, Sc. = Scarce, N.R.R. = No Recent Records, F.C. = Fairly Common